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PSYCHE

VOL. XLIV MARCH-JUNE, 1937 Nos. 1-2

THE SCIENTIFIC WORK OF ALBERT PITTS MORSE

By Richard Dow

New England Museum of Natural History

Albert Pitts Morse, best known for his work on the Orthoptera of New England, was born in Sherborn, Massachusetts, on February 10, 1863. He was a direct descendant of Samuel Morse of Dedham, whose son Daniel became one of the incorporators of the town of Sherborn in 1674. His father, Leonard Townsend Morse, was prominent in town affairs for many years.

As a boy, Mr. Morse attended the local schools, graduating from the Sawin Academy of Sherborn in 1879. He was unfortunately prevented from acquiring additional schooling by lack of robust health and the need of his services at home. Early attracted by the beauty of nature and endowed with an inquiring mind, he began to collect specimens, study taxidermy, and become acquainted with the wild life in his vicinity, a district rich in natural resources. He was encouraged and aided in these pursuits by several local naturalists and collectors, among whom should be mentioned Amory L. Babcock and Edgar J. Smith of Sherborn, and William Edwards of South Natick.

At the age of 23 he abandoned farming as a livelihood and took up draughting, a vocation which he followed for several years. After the death of his parents in 1886 and 1888, he accepted a position as assistant in the Zoölogical Department of Wellesley College, with which institution he was connected in different capacities for more than 45 years (until 1933). As collector and instructor, he served the students and teachers in various ways, developed the mu-

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seum, and lectured on elementary and systematic zoölogy and entomology. During the first part of this period he attended the summer school of the Marine Biological Laboratory at Woods Hole, took a long summer course in entomology at Cornell University under Professor J. H. Comstock, and made extensive collections of New England insects, paying particular attention to the Orthoptera and Odonata, in which orders he discovered and described many new species.

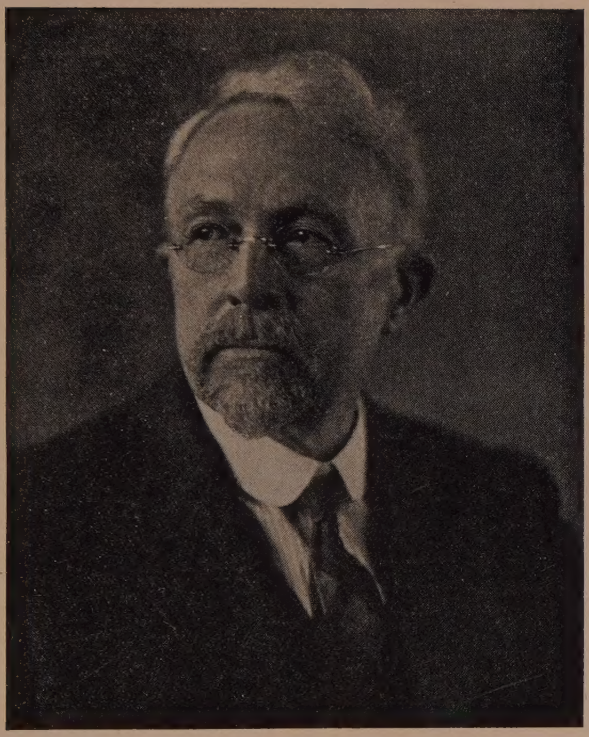
In 1893 Mr. Morse married Miss Annie McGill of Dover. They lived in Sherborn until 1900, and then moved to Wellesley.

In 1897, with the encouragement of Mr. S. H. Scudder, Mr. Morse undertook a summer's trip to the Pacific Coast to collect the Orthoptera of that region. He returned with several thousand specimens including representatives of many new species most of which were described by Mr. Scudder.

In 1901, at the request of Professor Alpheus Hyatt, he reorganized the instruction in zoölogy of the Teachers' School of Science of the Boston Society of Natural History, combining a series of field trips each spring and fall with a winter term of laboratory work, in a four year course. This was successfully conducted for two periods of four years, each of which included a year of entomology. The purpose of these lessons was to equip the teacher of biology in secondary schools with a practical as well as theoretical knowledge of the subject. Their success was attested by the numbers which attended and the affection and loyalty of the students.

In 1903 and again in 1905, Mr. Morse was appointed Research Assistant by the Carnegie Institution of Washington and awarded a fund to be expended in the study of the Orthoptera of the southern United States. With this assistance he made two field trips covering the region from Virginia to Texas, as a result of which he wrote two reports on the grasshopper fauna and its ecology.

During a portion of the summer vacations from 1909 to 1912, Mr. Morse taught natural history to the boys, girls, and teachers of Woodstock, Vermont, under the patronage of Miss Elizabeth Billings of that town, and then, at her sug-



Albert Pitts Morse, 1863–1936

gestion and with her support, devoted his spare time for several seasons to the preparation of an excellent monograph on the New England Orthoptera. This volume of 350 pages was published by the Boston Society of Natural History in 1920.

In January, 1911, Mr. Morse became connected with the Peabody Museum of Salem, at first in charge of insects only, and later (December of the same year) as Curator of Natural History, though devoting only part of his time to that institution until 1926. In 1920 he spent a month in field work on the Orthoptera of Maine, subsequently preparing a report on this subject for the Maine Agricultural Experiment Station. From 1919 to 1923, at least a part of his summer vacation was spent, mainly in Nebraska, in a study of the food habits of grasshoppers with reference to their attacks on binder-twine. In 1926 he became a trustee of the Ropes Memorial of Salem, serving on the committee on grounds and as chairman of the committee on botanical lectures, which during his incumbency were largely arranged by him.

In 1934 his health began to fail, and after February, 1935, he was forced to give up his regular work at the Peabody Museum. His death occurred at Wellesley on April 29, 1936. He is survived by his wife, two children, and four grandchildren.

Mr. Morse was a fellow of the American Association for the Advancement of Science and of the Entomological Society of America, and a member of the following organizations: the Boston Society of Natural History, Morse Science Club of Salem (twice President), American Association of Economic Entomologists, Cambridge Entomological Club (President 1898, 1914, 1923, 1933-34), American Ornithologists' Union, Essex County Ornithological Club (Vice-president from its inception until 1934, then President until his death), Massachusetts Audubon Society, New England Bird-banding Association, Nuttall Ornithological Club, American Fern Society, New England Botanical Club (Vice-president 1928-1931), and the Massachusetts Horticultural Society.

Mr. Morse's private collection of insects, which contained more than fifty thousand specimens and included many types, was acquired by the Museum of Comparative Zoölogy at

Harvard College during the academic year 1920-21. The museums at Boston and Salem also possess many specimens which he collected personally. Some of his material bears one or more of the following printed labels:

Coll. A. P. M. Lot No.	Essex Co. Lot	Coll. P. M. Lot No.

The numbers to be found on the first of these labels are explained in a manuscript notebook at the Museum of Comparative Zoölogy. The key to those on the second and third labels is contained in another notebook at the Peabody Museum of Salem. The data for all of the lots is available at both of the above museums, and also at the Boston Society of Natural History. It should be noted that these labels sometimes indicate only the authority who determined the material, and that the Essex County label does not necessarily mean that the specimen with which it is pinned was collected in that locality.

Mr. Morse was above all a lover of nature with a remarkable knowledge of natural history. The members of the Cambridge Entomological Club, at whose meetings he was a constant and welcome attendant, greatly miss his presence and his interesting, often humorous, contributions. He was an accurate observer and meticulous in attention to detail. Few men with as little formal training are able to command so much respect for their scientific work.

The following bibliography contains most of Mr. Morse's published writings. It does not include the articles which he contributed to newspapers, or a record of the many notes and exhibits which he presented at meetings of the Cambridge Entomological Club. The latter may be found in various issues of PSYCHE.

[Letter concerning the orchid fly.] Insect Life 2: 250. 1890.

[Letter concerning orchid pests.] Insect Life 3: 22. 1890.

A suggestion to lepidopterists. Ent. News 3: 121-122. 1892.

A melanistic locust. Psyche 6: 401-402. 1893.

A new species of Stenobothrus from Connecticut, with

remarks on other New England species. Psyche 6: 477-479, figs. 1-6. 1893.

Wing-length in some New England Acrididæ. Psyche 7: 13-14. 1894 (mailed in December, 1893). Ibid.: 53-55. 1894.

A preliminary list of the Acrididæ of New England. Psyche 7: 102-108. 1894.

Notes on the Orthoptera of Penikese and Cuttyhunk. Psyche 7: 179-180. 1894.

Notes on the Acrididæ of New England. 1. [Tettiginæ.] Psyche 7: 147-154, 163-167, pl. 6. 1894.

On the use of bisulphide. Journ. N. Y. Ent. Soc. 2: 191. 1894.

Spharagemon: a study of the New England species. Proc. Boston Soc. Nat. Hist. 26: 220-240, figs. 1-9. 1894.

[Review of preceding article.] Psyche 7: 138, figs. 1-9. 1894.

New North American Odonata. Psyche 7: 207-211, 274-275. 1895.

Revision of the species of Spharagemon. Psyche 7: 287-299, figs. 1-6. 1895.

Enallagma pictum Morse. Psyche 7: 307. 1895.

New North American Tettiginæ. 1. Journ. N. Y. Ent. Soc. 3: 14-16. 1895.

New North American Tettiginæ. 2. Journ. N. Y. Ent. Soc. 3: 107-109. 1895.

Notes on the Acrididæ of New England. 2. Tryxalinæ. Psyche 7: 323-327, 342-344, 382-384, 402-403, 407-411, 419-422, 443-445, pl. 7. 1896.

Some notes on locust stridulation. Journ. N. Y. Ent. Soc. 4: 16-20. 1896.

Both sides of butterflies. Journ. N. Y. Ent. Soc. 4: 20-22. 1896.

Illustrations of North American Tettiginæ. Journ. N. Y. Ent. Soc. 4: 49, pl. 2. 1896.

Notes on New England Acrididæ. 3. Oedipodinæ. Psyche 8: 6-8, 35-37, 50-51, 64-66, 80-82, 87-89, 111-114, pl. 2. 1897.

Birds. In *A history of Dover, Massachusetts* [etc.] by Frank Smith: 336-348. Dover, Mass. 1897.

List of birds of Dover. [Reprint of preceding article.] pp. [i-ii], 1-13. 1897.

Annotated list of birds of Wellesley and vicinity, comprising the land-birds and most of the inland water-fowl of eastern Massachusetts. pp. 1-56, frontispiece. Wellesley, Mass. 1897.

Pacific Coast collecting. Psyche 8: 160-167, 174-177. 1898.

Notes on New England Acridiidæ. 4. Acridiinæ. Psyche 8: 247-248, 255-260, 269-273, 279-282, 292-296, pl. 7. 1898.

The distribution of the New England locusts. Psyche 8: 315-323, pl. 8. 1899.

New North American Tettiginæ. 3. Journ. N. Y. Ent. Soc. 7: 198-201. 1899.

A new method of pressing plants. Plant World 2: 114-115. 1899.

Subfam. Tettiginæ. Biol. Centrali-Amer., Insecta, Orth. 2: 3-16, 6 figs. 1900. Ibid.: 17-19, 2 figs. 1901.

Variation in Tridactylus. Psyche 9: 197-199, figs. 1-5. 1901.

[Translation of *Ebauche sur les mœurs des fourmis de l'Amérique du Nord* by Auguste Forel (Riv. di Scien. Biol. 2: 180-192. 1900.).] Psyche 9: 231-239, 243-245. 1901.

New North American Orthoptera. Can. Ent. 33: 129-131. 1901.

The Xiphidiini of the Pacific Coast. Can. Ent. 33: 201-205. 1901.

A new Xiphidium from Florida. Can. Ent. 33: 236. 1901.

Dichopetala brevicauda—a correction. Psyche 9: 380-381. 1902.

[Review of *A nature wooing at Ormond by the sea* by W. S. Blatchley.] Psyche 10: 43. 1903.

New Orthoptera from Nevada. Psyche 10: 115-116. 1903. Reprinted in Invertebrata Pacifica 1: 14-16. 1903.

Amory Leland Babcock. Psyche 10: 187. 1903 [1904].

New Acridiidæ from the southeastern states. Psyche 11: 7-13. 1904.

[Review of *The Orthoptera of Indiana* by W. S. Blatchley.] Psyche 11: 23-24. 1904.

A faunal and floral tabulation-scheme. Psyche 11: 25-28, pl. 4. 1904.

Diestrammena unicolor in North America. Psyche 11: 80. 1904.

Researches on North American Acridiidæ. Carnegie Institution of Wash., Publ. 18: 1-55, figs. 1-13, pls. 1-8. 1904.

Some Bahama Orthoptera. Psyche 12: 19-24. 1905.

New Acridiidæ from the southern states. Psyche 13: 119-122. 1906.

Melanoplus viridipes in New England. Psyche 13: 135. 1906.

Nemobius palustris Blatchley. Psyche 13: 158. 1906.

The ecological relations of the Orthoptera in the Porcupine Mountains, Michigan. Rept. State Board of Geol. Survey of Michigan for 1905: 68-72. 1906.

Paratylotropidia beutenmuelleri sp. nov. Psyche 14: 14. 1907.

Podisma australis nom. nov. Psyche 14: 57. 1907.

Further researches on North American Acridiidæ. Carnegie Institution of Wash., Publ. 68: 1-54, fig. 1, frontispiece, pls. 1-9. 1907.

Tettigidean notes, and a new species. Psyche 15: 25. 1908.

Melanoplus harrisii n. sp. Psyche 16: 12. 1909.

Report on the Isle Royale Orthoptera of the 1905 expedition. An Ecological Survey of Isle Royale, Lake Superior, published as a part of the Rept. of the Board of Geol. Survey of Mich. for 1908: 299-303. 1909.

A hopperdozer for rough ground. Psyche 17: 79-81, fig. 1. 1910.

Lucilia sericata as a household pest. Psyche 18: 89-92, fig. 1. 1911.

The orthopterological work of Mr. S. H. Scudder, with personal reminiscences. Psyche 18: 187-192. 1911.

A pocket list of the birds of eastern Massachusetts with especial reference to Essex County. pp. 1-92 + 13 (chart), frontispiece. Salem, Mass. 1912.

Leptura emarginata in New England. Psyche 22: 212. 1915 [1916].

[With Morgan Hebard as joint author.] Fixation of single type (lectotypic) specimens of species of American Orthoptera. Division 3. Species of North American Orthoptera described by Albert Pitts Morse. Proc. Acad. Nat. Sci. Philadelphia 67: 96-106. 1915.

A New England orthopteran adventive. Psyche 23: 178-180. 1916 [1917].

[Review of *The Blattidæ of North America, north of the Mexican boundary* by Morgan Hebard.] Ent. News 28: 430-431. 1917.

List of the water-color drawings of fungi by George E. Morris in the Peabody Museum of Salem. pp. 1-70, frontispiece (portrait). Peabody Museum, Salem, Mass. 1918.

Amaranthus Powellii and *Digitaria lanata* in New England. Rhodora 20: 203. 1918 [1919].

New records of Orthoptera in New England. Psyche 26: 16-18. 1919.

A list of the Orthoptera of New England. Psyche 26: 21-39. 1919.

Manual of the Orthoptera of New England, including the locusts, grasshoppers, crickets, and their allies. Proc. Boston Soc. Nat. Hist. 35: 197-556, figs. 1-99, pls. 10-29. 1920.

At a food-shelf. Bull. Essex Co. Ornith. Club 2: 12-14. 1920 [1921].

Sympetrum corruptum in Massachusetts. Psyche 28: 7. 1921.

Monecphora bicincta (Say) in New England. Psyche 28: 27-28. 1921.

Orthoptera of Maine. Grasshoppers and related insects. Bull. Me. Agric. Exper. Sta. 296: [i-ii], 1-36, figs. 1-25. 1921.

Grasshoppers and related insects. pp. 1-6. [Circular Me. Agric. Exper. Sta. 541. 1921.]

A sheld duck (*Tadorna tadorna* L.) from Essex County, Mass. Bull. Essex Co. Ornith. Club 3: 68, 1 pl. 1921 [1922].

Franklin's gull in New England. Bull. Essex Co. Ornith. Club 3: 69. 1921 [1922].

The seal of the Cambridge Entomological Club. Psyche 29: 42. 1922.

The European house cricket; hearth cricket. Psyche 29: 225. 1922 [1923].

Another Essex County record for the blue-gray gnatcatcher. Bull. Essex Co. Ornith. Club 5: 25. 1923 [1924].

Lepidium latifolium in New England. Rhodora 26: 197-198. 1924.

Some rarities from Essex County, Mass. Psyche 32: 298. 1925 [1926].

Two vagrant grasshoppers and a moth. Psyche 33: 53. 1926.

Protective tubes for birdskins. Bull. Essex Co. Ornith. Club 8: 57-59. 1926 [1927].

An interesting butterfly capture. Psyche 34: 10. 1927.

Another vagrant grasshopper. Psyche 34: 134. 1927.

"Data is" or "data are": which? Science n.s. 65: 355. 1927.

The way of a snake with a gopher. Copeia 164: 71-72. 1927.

John Robinson, botanist, of Salem, Massachusetts. Rhodora 31: 245-254, 1 pl. (portrait). 1929.

Grasshoppers vs. salt. Journ. Econ. Ent. 23: 465. 1930.

A window-print. Bull. Essex Co. Ornith. Club 11: 74, 1 pl. 1929 [1930].

The American lotus at West Peabody, Massachusetts. Rhodora 33: 230. 1931.

The insect collections of a public museum. Psyche 41: 158-163. 1934.

Another kingfisher and a goldfish. Bull. Essex Co. Ornith. Club 16: 18. 1934 [1935].

[Bibliography of the scientific writings of E. S. Morse in *Biographical memoir of Edward Sylvester Morse, 1838-1925* by L. O. Howard.] National Acad. Sci., Biogr. Mem. 17 (1): 20-29. 1935.

NEW SPECIES OF EXOTIC SYRPHID FLIES

By Frank M. Hull

University of Mississippi

Some time ago, Professor Nathan Banks placed in my hands for study an interesting collection of Syrphid flies that had accumulated in the collections of the Museum of Comparative Zoölogy. These flies have come from many sections of the world and, as was to be expected, include a number of new species, the descriptions of which are presented in this paper. Notes on the occurrence and distribution of other species will perhaps be published at a later date. I wish to thank Prof. Banks for the opportunity of studying this interesting assortment of Syrphids as well as for the facilities for study in the Museum which he so kindly placed at my disposal.

Meromacrus melmoth n. sp.

Male. Eyes narrowly joined. Vertex slightly raised, black. Face and front black, conspicuously yellowish white pilose along the sides of the front, on the eye margins, running down the sides of the eyes and thence to the oral margin as a diagonal facial stripe. This leaves the face obscurely shining black, the black as a V-shaped wedge below antennæ, reaching to oral margin, its widest part at the base of the antennæ. Cheeks shining blackish. The facial stripe beneath the sparse pile is whitish pruinose and much more conspicuous than the pile. The pile on the sides of the front assumes the curious appressed character typical of the genus. Occiput and lower part of vertical triangle below the ocelli, similarly colored, pilose and pruinose. Face somewhat carinate. Antennæ blackish brown, the third joint lighter brown, extraordinarily truncated dorso-apically and coming to a rounded point, the arista basally thickened, yellow, quite pale at tip, and twice as long as the third joint.

Thorax, pleuræ, and scutellum dull black, except that the

latter has a brownish rim. The markings unfortunately obscured by poor preservation but a yellow tomentose spot on the inner medial angles of humeri, a vertical narrow similar stripe on the middle of pleuræ, and some evidence of the same on the posterior calli. Halteres brownish; stalk darker.

Abdomen black, very dark brown laterally and on the posterior half of the last segment and the hypopygium, covered with microscopically short, black bristles, some scattered short pale pile, and a transverse narrow band of pale tomentum on the post border of first segment.

Legs black, tarsi brown, the femora covered with thick, quite long, pale, very fine hair. Hind femora extraordinarily thick.

Wings with a strong black anterior border, the black keeping to the configuration of the third longitudinal vein, but filling the anterior part of the first basal and the first posterior cells, and the loop of the third longitudinal vein is filled, but bears a small clear spot.

Length 15mm.

One male. Bolivia. Province of Sara (Steinbach). Type in the Museum of Comparative Zoölogy.

This peculiar species is very close to *Meromacrus niger* Sack, from which it differs in the extraordinarily thickened hind femora besides other characters. The dull black color and femora serve to distinguish it.

Velocimyia n. gen.

Small flies. Eyes bare, touching in male for a short distance. Face and front heavily pubescent and with some longer pile on the former. Face with a very low weak tubercle on bump in the middle, the lower face bluntly conical. Antennæ of the simple Eristaliform type; arista bare, basally thickened. Thorax simple. Scutellum small, two or three times as wide as long, and without margin. Abdomen tapering posteriorward, but four segments and tip of hypogynium visible. The last segment of the abdomen together with the hypopygium wide, round, exceptionally prominent and conspicuous. In this respect the form resembles the new world *Meromacrus*.

Legs except for thickened hind femora largely simple. The hind femora apicoventrally possesses a low setæ-beset tubercle. Hind tibiæ basally incised.

Wings Eristaliform. The kink of third vein is formed like that of *Eristalis* rather than *Protylocera* and there is no spur on the kink.

Genotype: *Velocimyia velox*, new species.

Velocimyia velox n. sp.

Plate II, Figs. 1, 2, 3

Male. Eyes narrowly touching for less than distance of posterior ocelli. Front, face, vertex black, the latter covered with dark brown pollen, the front with grey pubescence, the face thickly covered with white pubescence. A small shining bare space above the antennæ without trace of wrinkles. No shining median stripe on face, but an obscure bare, shining stripe on cheeks. Antennæ black, third segment grey pollinose or pubescent. Arista two and one-half times length of oval third joint, light brown in color, bare.

Thorax black, with a bluish cast, dully shining, heavily dark grey pollinose. Scutellum wide, translucent, yellowish brown, without pile, except on the corners, although its punctate surface indicates that it was pilose. Pile of thorax thick, erect, moderately long, pale in color. Squamæ and fringe pale yellow, very large. Abdomen with venter and hypopygium entirely bright orange with one exception. The base of the second segment with a broad basal triangle, its apex reaching less than one half of the length of the segment, the triangle continued to the first segment, where it is bluish black, leaving only the lateral corners of that segment pale. Abdomen practically opaque except for the last segment. Last two segments and third and fourth with parallel sides, narrower than the second. Hypopygium very large. Pile of abdomen pale, rather long terminally.

Legs black, base of face and mid tibiæ yellowish brown, mid basitarsi dark brown. Hind femora very thick, but confined to anterior surface, posterior surface straight, a nodular prominence beset with bristles near the apex. Hind tibiæ opposite nodule of femora noticeably incised, its apex spurred.

Wings hyaline, stigma brown. A deep loop of third longitudinal vein into first posterior cell; the marginal cell closed before the apex of first longitudinal vein, and the first posterior cell closed before apex of third longitudinal vein.

Length 10 mm.

Three co-types. Males. One is from Mandritsara, Madagascar (Wulsin) whose type no. is 2270 in the Museum of Comparative Zoölogy. The two others, Antananarivo, Madagascar, were discovered in the collections at the Museum für Naturkunde, Berlin. Dr. G. Enderlein has kindly presented me with one of them, which is in my own collection. The third is in his collection.

The first specimen studied, from the Museum of Comparative Zoölogy, curiously bears no evidence of the spotted eyes, and I was inclined to view this species as nearest to *Protylocera*. The discovery of subsequent specimens reveals that the eyes are generously spotted. Nevertheless, the distinctive type of abdomen, much enlarged hypopygium, as well as the excised tibia and nodulate hind femora show that it is not an ordinary *Lathyrophthalmus*. Another species which Speiser placed under *Lathyrophthalmus, myiatropinus,* agrees in these peculiarities and differs from the present species in its dark terminal segments, etc. The two forms may very well be grouped under the name given, since besides the other distinctions mentioned, they lack either the metallic color or the characteristic stripes of *Lathyrophthalmus*. It may be remarked that the spotted nature of the eyes probably shows no close relationship to *Lathyrophthalmus* whatever, since at the present no less than five genera show such spots. Three genera show the enormous hypopygium: *Meromacroides* of Curran (Africa), *Meromacrus* Rondani (S. America) and the present group of species.

Lathyrophthalmus vitrescens n. sp.

Plate II, fig. 4

Female. Eyes distant by one and one-half times width of posterior ocelli; side of front diverging considerably towards antennæ. Front yellow and grey-brown pollinose, varying according to direction, but apparently with a con-

stant, pale, narrow eye stripe, a large pale region above antennæ surrounding a brown central elevation. Middle of lower front with a narrow dark brown streak. Face with pale yellow brown pubescence, except for bare central knob. Face rippled. Antennæ light or orange brown, darker dorsally on third joint. Arista very long, pale brown. Cheeks more or less bare shining light brown. Eyes spotted, of which it may be said that the spots are very numerous, small, mostly regularly spaced, rarely confluent, and usually separated by from one to two times their own diameter.

Thorax blue black, shining, five vittate, the vittæ dull grey but being obscurely shining posteriorly. Scutellum strongly shining greenish blue. Squamæ dark brown, halteres lighter.

Abdomen shining, greenish or bluish black, except that the first segment and base of second is dark brown, and the second, third and fourth segments are crossed by opaque black bands, first barely interrupted, the latter two well interrupted medially and laterally.

Legs dark brown, apices of femora very narrowly, basal half or third of tibiæ, and all the tarsi light yellow or brownish yellow, palest on the tibiæ. Wings very hyaline. Stigma quite small.

Length 12 mm.

One female. Fiji; Lomoti. (W. M. Mann.) Type in the Museum of Comparative Zoölogy.

I should be inclined to place this species in *L. nitidus* Wulp, did not specimens I have seen from Samoa agree better with the notes and interpretation of the species by Herve-Bazin and Bezzi. These I have commented on in my paper on Samoan Syrphidæ. The more totally blue black coloration, entire opaque bands of abdomen, and minor differences convince me that the two forms are at least quite different species.

Korinchia simulans de Meij.

Originally described by de Meijere as a Milesia, but should probably be placed in *Korinchia*.

Two females in the Museum of Comparative Zoölogy. Java; Tijboda (T. Barbour).

Eumerus obtusiceps n. sp.

Male. Eyes touch for the short length of front. Vertical

triangle is therefore long, acute in front, its sides parallel behind. Occiput remarkably thick, pale brownish polinose, black punctate. Vertex similarly pollinose and punctate, anterior ocelli far removed, lying in brown pollen, the posterior pair in a black area. Eyes bare. Pile of the vertex largely blackish except just in front. Front and face covered with brilliant silver scalose pubescence and some erect white pile. Occiput punctate white scalose, short white pilose. Antennæ situated slightly below middle, black. Third joint large, ventrally pointed. Arista basally thickened, yellow, remainder very wiry, slender and dark.

Dorsum of thorax black, obscurely shining, thickly punctate, pile short, thick, black with some pale hairs, the suture narrowly pale whitish or greyish pollinose. Scutellum concolorous, flat, its edge with a conspicuous narrow yellowish brown pollinose border, its apex with outwardly directed short pile of the same color, and its erect surface pile longer than that of the thorax and entirely pale. Moreover, the bulk of the pile is also on the rim and directed upward at an angle of forty-five degrees. Squamæ and halteres brownish yellow.

Abdomen decidedly flared basally; abdomen shining black, thickly black punctate, bearing thick appressed black bristles most prominent on terminal segment, and considerable fine white pile, particularly on the sides of the abdomen. First segment with a narrow V of white punctate pollen, barely interrupted medially, the angle anteriorly directed, and the ends continued (narrowly) into the corners of the third segment. Third segment similarly marked, and fourth similar except that the pollinose spot spreads out posteriorly and is largely broken by black punctate spots. Fore and middle legs brown, apices of the femora, of the tibiæ and their base and all the tarsi brownish yellow. Hind femora and tibiæ black, except narrow apex of former, and base of latter; both thickened, the femora greatly enlarged. Hind tarsi brown, basi tarsi greatly dilated.

Wings with terminal segment of fourth longitudinal vein oddly angulated, just before reaching the third longitudinal vein, it forms an acute V-shaped angle; the angle of the V is spurred. Wings slightly fumose.

Length 8.5 mm.

One male. Neumannis Boma, British East Africa (Allen and Brooks). Type in the Museum of Comparative Zoölogy.

This species traces to *Eumerus scaber* in Bezzi's key. That species is said to have a bare bluish front; its genitalia are reddish. The occiput of this species cannot be described as black pilose, etc. In Herve-Bazin's key it traces to *Eumerus feæ* Bez. with which it could hardly be confused.

Microdon argentinae n. sp.

Plate II, fig. 5.

Male. Front narrowed sharply above antennæ. The narrowest width slightly better than one-half width at vertex measured from upper eye angles. The narrowest portion marked by a prominent groove on its front side obtusely widened and leading down to a point between antennæ. Front and vertex and face rich shining brown. Cheeks a little darker brown. Face strongly convex, both from the side and from above. Vertex slightly raised. First joint of antennæ light shining brown, as long as front from vertex to depression. Remainder of antennæ wanting. Pile of face and head everywhere pale yellow, sparse, shorter on the front, rather long and thicker on the sides of face below antennæ. Middle of face nearly bare, possibly due to denudation.

Dorsum of thorax, pleuræ, scutellum, and legs rich shining brown, the abdomen pale brown. Pile of thorax short, pale, appressed, with a few scattered darker hairs. Scutellum quite wide, trapezoidal, the small but slender, sharp, bare points, quite far apart, slightly diverging. Middle of scutellum not emarginate. Halteres dark brown.

The abdomen is of the short broad form, pointed apically, with ventral flexure at the edges of the flared second segment.

Piles of legs dark brown, becoming golden brown on lower surfaces of tarsi and apical portions of tibiæ. Hind basitarsi not remarkably thickened, its greatest thickness basally, twice its distal thickness, perhaps a little more than twice as thick as the second tarsal segment.

Wings tinged rather uniformly with brown. Veins dark brown. Last section of fourth longitudinal vein very angulated, emitting a stump on each side toward margin of wing,

and trace of an inward stump on one wing. Lower terminal section of vein closing first posterior cell and one closing discal cell remarkably rounded. An extensive spur is present from the third longitudinal vein almost reaching spurious vein.

Length 10.5 mm.

One male, Cordova, Argentina (Davis). Type in the Museum of Comparative Zoölogy.

Microdon digitator n. sp.

Plate II, fig. 6.

Male. Head rounded in profile; similar to *Microdon investigator*. Front narrowest above antennæ, but the sides nearly parallel, diverging toward the vertex. Antennæ, face, front and vertex black, the latter shining. Antennæ short, the first joint and third subequal, either twice the length of second. Arista short, much thickened basally, reaching just past third joint. Pile of head everywhere pale yellowish to whitish, sparse.

Thorax and scutellum everywhere shining black. Pile sub-appressed, sparse, yellowish to golden. Scutellum evenly rounded, a little more pointed centrally, without spines, margins, déntations, etc. Halteres brown.

First and fourth abdominal segments brown to black, obscurely shining; second and third pale brownish yellow, the second the palest, subtranslucent. Pile very short except on the outer edges of the second segment where it is long and golden. Pile black or brown elsewhere, except on the posterior lateral angles of the third segment where it is golden. Legs light brown except for the middle of all the femora, and quite small spots in the middle of each tibiæ. Hind basitarsi not at all thickened.

Wings rather uniformly suffused with brown, lighter in the first posterior, discal, first basal cells. Termination of fourth longitudinal vein straight, nearly rectangular, angle of discal cell rounded. Spur of third longitudinal present, spurious vein not prominent. Angle of first posterior cell spurred to near by wing margin.

Length 9 mm.

One male, Tjibodas, Mt. Gede, Java. 1909, 4500 ft. (Bry-

ant and Palmer). Type in the Museum of Comparative Zoölogy.

Microdon investigator n. sp.

Plate II, fig. 7 and 8.

Male. Sides of front nearly parallel, slightly converging to vertex, narrowest just across ocelli. Front smooth, shining brownish black, punctate. Antennæ situated just below upper point of middle third of profile. Profile of head evenly rounded, remarkably convex. Cheeks very narrow, invisible in profile. Face widest just below antennæ. Sides nearly parallel. No antennal prominence. Antennæ light orange, first joint twice length of second, third equal to first and second concave dorsally, drawing out to a sharp point, suggesting a thumb. Arista pale, slightly longer than third joint. Face shining brassy brown, with a suggestion of violaceous color. Pile of face, front, vertex sparse brassy yellow, appressed on face.

Thorax and scutellum dark, moderately shining brown, pile golden, thick and markedly appressed. Pleuræ similarly colored with a conspicuous patch of dense golden pile. Pile of scutellum erect. Squamæ and halteres light yellow.

Abdomen pale yellowish brown, third and fourth with basal halves and nearly the whole of the fifth segment dark brown. Pile of light area exceptionally dense and appressed, golden; of dark area black. Venter pale brownish yellow, sub-translucent, the lateral edges continuously black.

Legs light brownish yellow, except for a dark brown spot about the middle of antero-ventral surface of each femur and the basal third of the tibiæ, paler yellow. Hind femora with anterior diagonal scar or cicatrix on basal half. Hind basitarsi nearly as long as remaining segments inclusive; twice their thickness.

Wings palely but uniformly brownish; termination of fourth longitudinal vein sharply rectangular, its angle emitting a spur; an angle of discal cell rounded. Spurious vein quite faint. Spur from third longitudinal vein prominent.

Length 13.5 mm.

One male, Galog River, Mt. Apo, Mindanao, Philippine

Islands, Sept. 12 (C. S. Clagg). Type in the Museum of Comparative Zoölogy.

Hypselosyrphus n. gen.

Plate II, fig. 9.

Small flies, related to *Microdon* with the weak and flattened abdomen somewhat longer than broad. Face round convex, with the vertex produced into a curved jutting knob. Scutellum sulcate, tumid, angularly directed upward. Hind basitarsi and forebasitarsi swollen. Hind tibiæ convex, with a swollen ornament suggesting a load of pollen, heavily pilose. Hind femora not greatly thickened. No trace of spur from third vein is directed into the first posterior cell. Terminal (bent up) portions of fourth and fifth longitudinal veins, that is, subapical and posterior cross veins, nearly straight, bulging at their basal corners and making angles of approximately seventy-five to eighty degrees with the veins they join.

Genotype: *Hypselosyrphus trigonus* n. sp.

This fly suggests very strongly a trigonid bee, as do the species of *Ubristes* of the *Microdontini*. *Microdon scutellaris* Shannon, described from the Amazon, seems to fall into *Hypselosyrphus*, but differing in the differently colored abdomen.

Hypselosyrphus trigonus n. sp.

Plate II, fig. 9.

Male. Front enormously swollen as a shining knob, the ocelli on top. Front excavated, flat, leaving a considerable concavity in profile. Face in profile convex, evenly rounded. Antennæ situated at upper third. First and third joints subequal, the latter pointed, second quite short. Arista slender, as long as third joint. Color of antennæ dark brown. Face, front and vertex shining dark mahogany red or brown, almost black.

Thorax very dark brown, almost black, a row of white pile across at suture, and on base of scutellum, remainder densely erect short black pilose. Pleuræ shining dark brown, sparsely pilose. Halteres and squamæ dark blackish. Scutellum dark blackish, prominent, directed upward at an

angle of forty-five degrees, deeply sulcate medially, the sides swollen, rounded, without spines.

Abdomen short oval, flat, vitreous, dark reddish brown on first, second and narrowly on base of third segment. Remainder bright orange.

Legs dark shining purplish or reddish black, tarsi except hind basitarsi light yellowish brown. Fore basitarsi swollen anteriorly. Hind basitarsi considerably swollen. Hind tibiæ greatly swollen and dorsally arcuate, a curious crease running around it, below the part of greatest swelling. Tibiæ heavily long black pilose.

Wings brownish especially basally, with a faint pale yellow spot beginning past the stigma. Last section of fourth longitudinal vein straight, not angular, no spurs present, not even from the angle of the fourth longitudinal vein.

Length 7 mm. or about 8 mm. with the antennæ.

One male. Barro Colorado, Panama, July 16, 1924 (Nathan Banks). Type in the Museum of Comparative Zoölogy.

This remarkable species suggests *Microdon panamensis* Curran, which lacks the interesting structural characters of this form. It is a handsome and peculiar species, that like *Ubristes* resembles *Trigonid* bees, but differs from that genus in the development of the vertex and scutellum, etc.

Paramicrodon novus n. sp.

Plate II, figs. 10 and 11.

Female. Head very globular, front wide, almost horizontal, sides nearly parallel diverging slightly to vertex. Vertex from corner of eyes very suddenly and sharply widened so that the post optical vertex is wide and deep. Front and vertex slightly convex, their color shining brownish or black, with short abundant, upright, golden pile. Ocelli set far down the middle of the front, more than half way down from vertex (extreme) to antennæ. Face more narrow than front, sides almost parallel, similar in color and similarly pilose. Antennæ set a little above middle of face, wholly brownish orange, first and second joints short, subequal, third equal to first and second. Arista dark, thickened basally, half again as long as third joint. Eyes bare.

Thorax shining brown, slightly brassy, covered with dense golden pile, highly appressed, a vertical pilose band on the pleuræ. Scutellum brown, simple. Margin evenly rounded, surface but little convex. Halteres and squamæ brownish yellow.

Abdomen dark brown, base of first segment with a yellow band, incised on its posterior border, a convex yellow band on the posterior border of second segment, a narrow similar border on the posterior edge of third segment and the narrow corners posteriorly of fourth and extreme tip of fifth segments. The posterior margins of second, third, fourth and fifth segments with a fringe of thick long, appressed golden pile. Abdomen quite elongate, over twice the length of thorax. Second segment nearly as long as third and fourth; fifth segment almost as long as fourth. Third and fourth segments subequal. Abdomen but little, if at all, constricted basally.

Legs light brownish yellow, golden appressed pilose, a brownish median band on the hind femora, a trace of same on mid femora.

Wings quite elongate; first posterior cell five to six times as long as wide at widest point. Third longitudinal vein without protruding spur. Spurious vein faint. Wings uniformly pubescent, tinged with pale brown.

Length 13.5 mm.

One female. Galog River, 6500 ft. Sept. 12, Mt. Apo, Mindanao, Philippine Islands (C. S. Clagg). Type in the Museum of Comparative Zoölogy.

This species must certainly be very close to Herve-Bazin's genotype, *Syrphinella miranda* H. B. Nevertheless, a careful comparison of the specimen before me with his very excellent figure, shows this form to have the third antennal joint a little shorter, the body narrower at base or more spatulate, and there are a fused pair of sub-translucent windows at the base of the second segment. The posterior golden pilose band of the fourth segment appears widely interrupted in *novus* (and there is in fact no light colored ground color), though it may be denudate. The wings are less generally infuscated, being really darkened only about the extreme tip. The veins over the wing are clearly not margined with brownish. I have seen other specimens from

the Philippines agreeing with Herve-Bazin's figure of *Syrphinella* in that the veins are markedly infuscate. Moreover they agree in the lack of translucent window to abdomen, and in having the fourth abdominal segment yellowish posteriorly and more or less golden pilose over the whole width. Thus they are very close to *Syrphinella* if not identical. But they have the third antennal joint distinctly pointed. *P. novus*, and the figure of *miranda* in nowise agree in this particular. De Meijere has described three other species in this genus from Java, New Guinea and Borneo, so that there may be many species. Sack has described what is probably a synonym of *miranda* under the name *Mixogaster cinctella* Sack.

Paramicrodon delicatulus n. sp.

This species differs from *Microdon flukei* Curran in the general bluish purple color, as well as other particulars. Pile above antennæ on vertex and occiput silvery, narrowly black below ocelli in the front. The antennæ are wholly orange, whereas they are brown in *flukei* with a black third joint. Abdomen unicolorous purplish, with the basal red color of *flukei*.

Two males. Soledad (Cienfuegos), Cuba, August 6, 1920 (N. Banks). Type in the Museum of Comparative Zoölogy. Paratype in the author's collection.

Pseudomicrodon n. gen.

Head short to quite short. In profile, occiput above moderately or considerably thickened. Antennæ situated above the middle of the head in profile, quite elongate in form. The first joint about as long or longer than remaining two, though obviously proportions in length must vary over some latitude in *Microdontine* antennæ. Face gently convex. Cheeks inconspicuous. Vertex rarely protuberant. Abdomen rather strongly pedunculate; the segments after the second fused into a beautiful, oval, cylindero-convex body, which is widest on the fourth segment, rounds off posteriorly, tapers gently forward anteriorly, and is strongly flexed downward at the second segment, practically held at right angles. Scutellum usually bears two fairly well developed teeth or points. Hind femora usually only moderately thick-

ened. First posterior cell with an adventitious vein, the subapical cross vein is straight.

Genotype: *Microdon beebei* Curran.

I have seen a number of species which fit with tolerable accuracy and certainty into the concept above; among them may be mentioned *Microdon nigrispinosis* Shannon, *illucens* Bezzi and probably *bellula* Williston.

Ceriomicrodon n. gen.

Head in profile not very long but extremely wide, practically twice as wide as thorax between the humeri. Occiput and vertex moderately developed, in nowise conspicuous. Front and face of average width. In profile the face bulges out below, much as in *Rhopalosyrphus* Gig.-Tos. Antennæ quite elongate, the third joint quite wide and flat and about two and one-half times as long as the first joint. Eyes bare on either side opposite antennæ with a curious narrow crease margined with grossly enlarged facets. This may be an abnormality, but as it is perfectly symmetrical on both sides, it may be normal. Occipital fringe reduced to a single row of long collar like hairs, much as in *Asarcina* or *Baccha.* Abdomen extremely petiolate, the first segment small, apparently completely fused with second segment, at any rate the first and second segments together are nearly ten times as long as wide in the middle. The second segment expands on its extreme posterior edge rather suddenly to some three or four times its narrowest width. Remaining segments fused into an oval bulging club. Scutellum quite short, broad and rounded, without spurs. Wings with a spur descending into the first posterior cell. Angles of the first and second posterior cells broadly rounded, without a trace of spurs.

Genotype: *Ceriomicrodon petiolatus* n. sp.

Cerioimicrodon petiolatus n. sp.

Face pale yellow, a wide median stripe, the cheeks, front, vertex, dorsum of thorax and scutellum fully shining bluish black. Abdomen obscurely shining black, second segment sub-translucent yellowish brown. Pile of thorax and dorsum microscopically short, save for white flecky pile on

transverse suture and at junction of third and fourth abdominal segments.

One male. West border Matto Grosso, Brazil, May, 1931 (R. C. Shannon). Type in the U. S. National Museum.

Stenomicrodon n. subgen.

Head in profile not especially long, the occiput above not more than normally developed, the front quite flat, of moderate width. Ocelli in a small, nearly equilateral triangle. Antennæ situated near the top of head, elongate, first joint at least as long as remaining joints. Cheeks inconspicuous and eyes bare. Abdomen elongate, several times as long as wide. The first segment flattened and excavated on each side. A deep constriction at the junction of the third and fourth segments and in the female slightly between the fourth and fifth segments. Scutellum without spines. Femora slightly thickened, with more than usually strongly developed patches of bristly setæ on the base of the third femora in both sexes as well as on the others. This extensive setiferous patch is quite differentiated from the surrounding pile. Third vein sends an adventitious vein down into the first posterior cell. Corners of first and second posterior cells broadly rounded, without spines apically. Wings in the known species are dark purplish brown.

Subgenotype: *Stenomicrodon purpureus* n. sp.

Stenomicrodon purpureus n. sp.

Differing from *Microdon stenogaster* Curran in the thicker third antennal joint, silvery pile, deeper scars on the hind femora and lighter colored pile.

One female, Tainan, Formosa (Rolle). Type in the author's collection.

Oligeriops n. gen.

Head very broad from above; vertex enormously developed. Ocelli situated on the summit in an equilateral triangle. Front in consequence quite broad, deeply punctate, eyes reduced in size, bare; cheeks bulging, together with the wide, slightly diverging face, densely long pilose. Head in profile more or less smoothly and evenly round. Antennæ set about the middle. First and third joints elongate, the

latter thick, particularly so at base, on its upper surface curved, with a short massive arista. Abdomen broad, oval, about one and one-half times as long as broad. The margins of the segments rolled, but in no way massively developed. Terminal portion of abdomen fused, gradually rounded, curved downward, the sides particularly convex towards the tip. Scutellum without points. Hind femora moderately thickened, femora and tibiæ without cicatrices or furrows. Subapical crossvein erect, almost straight, meeting the third vein at right angles quite far back from the margin. First basal cell with an adventitious vein descending into first posterior cell.

Genotype: *Microdon chalybeus* Ferguson.

Papiliomyia n. gen.

Head hemiglobular in profile, post occiput above tumid and vertex protruding as a conspicuous bump, but otherwise the front and vertex are quite narrow. Ocelli situated at top of the protuberance. Antennæ situated near top of head, the first joint quite elongate, in fact being considerably longer than remaining two together. Arista weak and delicate. Face narrower from the front, converging from below the antennæ. Eyes bare. Cheeks practically absent. The enormous eyes seem to cover almost the whole head. Abdomen elongate, over two times as long as wide. Widest at junction of second and third segments, but very little wider here. Fourth segment most deeply transversely concaved as far as the anterior two-thirds, leaving a convex rim posteriorly. The concave portion most oddly covered with centrally converging, flat lying hair from the base and sides. Metanotum exceedingly conspicuous and deep. Scutellum without points. Hind femora slender, basally spindled. Hind tibiæ thickened apically and with a deep shallow groove separating the apical fifth. Hind tibiæ very brushy as in *Trigonoid* bees. Wings long and slender. No trace of adventitious veins descends into the first posterior cell. Subapical cross vein straight and recurrent as well. Postical cross vein sigmoid in the genotype species. Costa deeply beaded with setigerous tubercles. Wings banded in both the known species. Weakly chitinized, delicate species, that suggest moths or scorpion flies.

Genotype: *Papiliomyia sepulchrasilva* n. sp.

Papiliomyia sepulchrasilva n. sp.

Differing at once from *Microdon maculatus* Shannon in the possession of only a single basal wing spot; apical half of thorax largely yellow, with two round spots and a wedge shaped spot; posterior half with two L-shaped spots. Abdomen past second segment almost wholly dark. Yellow wing border extended across wing as a stripe.

Two males. Rio Grand do Sul (Stieglmayr). Type in the Natural History Museum of Vienna. Paratype in the author's collection.

Syrphus cinereomaculatus n. sp.

Plate II, fig. 12.

Female. Front rather wide, nearly twice as wide at antennæ as at vertex, with the slightly raised vertex shining black, long blackish pilose, a dull grey pilose spot in the shallow depression of front, on either side about midways. Antennæ black. First and second subequal, the third three times as long as first, decidedly pointed at outer dorsal end. Arista black, thickened on basal two-thirds; no longer than the third joint. Face with a small shining black bare tubercle, gently concave beneath antennæ. Cheeks brownish, white pollinose, with a small bare diagonal stripe. Face heavily pollinose. Occiput to just above middle, long white pilose, thickly so. Pile of face long, thin, white, a conspicuous tuft before wing base. Scutellum yellowish brown, very shining long sparse black, pilose. Squamæ nearly white, tinged with brown, bare on lower lobe surface. Plumula snow white, halteres dark brown; knob paler.

Abdomen oval, shining black, a band on second segment interrupted in middle, quite narrow bands on third and fourth, narrowly interrupted in middle, are noticeable only for the gray pollen which covers them, though careful examination shows the underlying surface to be dark brown. Traces of smaller narrow spots are on the fifth segment. Abdomen very flat, emarginate. Venter shining black, with obscure grey pollinose bands.

Legs with the femora black, except the narrow yellow or

brown apices, white pilose. Tibiæ yellowish brown, darker in the middle. Tarsi dark brown to black. Hind femora very slender. Wings quite hyaline, stigma yellow, with proximal brown spot.

Length 9.5 mm.

One female. Mt. Kenia, British East Africa, Sept. 8 (G. M. Allen and G. Brooks). Type in the Museum of Comparative Zoölogy.

This interesting species is characterized by the highly vitreous black color, flat abdomen, remarkably narrow, slender grey pollinose bands or spots.

Pipunculosyrphus n. gen.

Head hemispherical. Eyes very large. Vertex small, compressed until knife like, the anterior ocellus not much remote and the vertex not swollen. Occiput narrowly visible in profile, except near the top, its collar of hairs short, but conspicuous, single rowed, and *Baccha*-like. The eye margins strongly concave in the middle, their facets enlarged above in the male. Antennæ set in middle of head in profile. Short, third joint orbicular. Arista slender, longer than the antennæ. Front swollen, face below antennæ rather concave, tubercle conspicuous, abruptly rising and declining. Face retreating past the tubercle. The cheeks inconspicuous. Sides of face parallel and close together. Thorax slightly longer than broad, convex. The humeri hidden by the head, bare. The mesopleuræ and dorsum practically without pile. Scutellum is long with long bristles on its rim and a ventral fringe is present.

Abdomen long and slender, about five times as long as wide with parallel sides. First segment short, laterally inflated and strongly convex. Its extreme base equipped with a vertical fringe of erect hairs against the metanotum which is inconspicuous. Abdomen dark with yellow bands or pairs of spots. Hind femora very slender and long. Hind tibiæ equally slender, not quite as long. The basi tarsi more than half as long as tibiæ. The mid femora flattened basally. Wings very elongate, being more than three times as long as wide. Alulæ absent. The marginal cross veins quite sigmoid. Vena spuria prominent.

Genotype: *Pipunculosyrphus globiceps* n. sp.

I consider this genus to be amply well founded since it represents an extreme as far as the known species are concerned, in at least four or five particulars. Unrelated to *Baccha* to which it bears a superficial resemblance, but it is noteworthy in the enormous eyes, hidden humeri, narrowly reduced face, knife-like vertical triangle, the shortened non-petiolate, abdomen, exceedingly elongate wing and lost alulæ, to say nothing of the erect basal metanotal fringe.

Pipunculosyrphus globiceps n. sp.

A slender light yellowish fly, which is brown on the upper part of the third antennal joint, upper half of front, disc of thorax, hind femora except basally, and the abdomen, except for pairs of yellow spots which are bordered by black. Front with a small round black spot above antennæ. Vertex black, paired spots of abdomen obliquely directed forward, their black posterior borders like confluent V-shaped marks. Last segment vitate. The middle stripe broad and black. Wings pale brownish. Stigma a little darker.

Two males, San Bernardino, Paraguay (Fiebrig). Type in the Museum of Natural History, Vienna, paratype in the author's collection.

Oligorhina n. gen.

Eyes bare, the vertex narrow, rapidly widening to the level of the antennæ, where the face is parallel-sided and rather narrow. In profile the head slants down from the vertex quite straight to the low tubercle shortly below the antennæ and is then still further produced to the epistoma, though not quite so sharply. Face, because of the narrowness, with a pinched out aspect. Antennæ set very far apart, short. The third joint a little longer than wide. Arista as long as the antennæ. Occiput not visible from the side below the middle of the eyes. Thorax as wide as head, quite convex, both from the front and from the side very sparsely pilose. Humeri bare, scutellum large, semicircular, somewhat flattened, a few large bristles on the margin, a few downward projecting hairs, but scarcely any fringe. Abdomen slender, spatulate, about five times as long as its greatest width, which begins on the fourth segment. Fourth and fifth segments with practically parallel sides. Second seg-

ment apically about two-thirds as wide as the fourth segment. Sides of the short first segment convex with stiff bristles. Margins of the abdomen curling over, especially posteriorly, where they decrease the width some. Femora short, straight, scarcely thickened. Tibiæ distally a little thickened and a little pinched, every bit as long as the femora. Wings considerably longer than abdomen. Alulæ reduced. Subapical cross veins close to wing margin, but very sigmoid. Third vein and costa carried down somewhat deeply at the end of the wing. Vena spuria heavily chitinized. Stigma dark.

Genotype: *Oligorhina ænea* n. sp.

Oligorhina aenea n. sp.

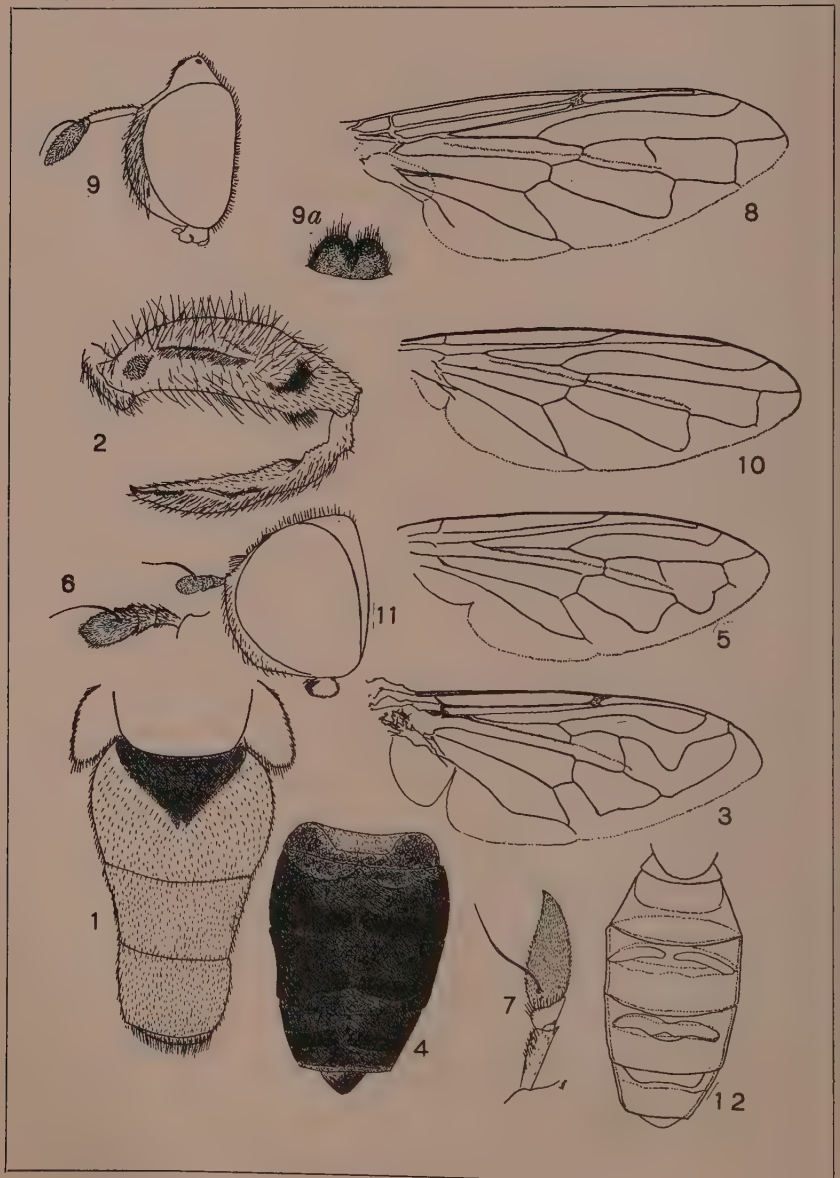
A curious species characterized by the very brown wings, darkened apically with a dark brown stigma. The rusty orange front, the black spot above antennæ and facial strip black. Vertex bright yellow, pleuræ, humeri, sides of pronotum calli, scutellum and anterior pairs of legs and the base of hind femora. The cheeks pale brownish yellow, the sides of the face bright shining yellow. Abdomen reddish brown, basal and apical borders of the remaining segments broadly shining, but preceded by opaque bands, which are produced forward as a slender triangle as far as the base of the segment.

Two females. Desbarriere, Mt. La Hotte, Haiti (4000 ft.), October 12, 1934 (Darlington). Type in the Museum of Comparative Zoölogy. Paratype in the author's collection.

EXPLANATION OF PLATE II

1. *Velocimyia velox* n. sp. (abdomen)
2. *Velocimyia velox* n. sp. (hind femora)
3. *Velocimyia velox* n. sp. (wing)
4. *Lathyrophthalmus vitrescens* n. sp. (abdomen)
5. *Microdon argentinæ* n. sp. (wing)
6. *Microdon digitator* n. sp. (antennæ)
7. *Microdon investigator* n. sp. (antennæ)
8. *Microdon investigator* (wing)
9. *Hypselosyrphus trigonus* n. sp. (profile of head; 9 a is scutellum)
10. *Paramicrodon novus* n. sp. (wing)
11. *Paramicrodon novus* n. sp. (profile of head)
12. *Syrphus cinereomaculatus* n. sp. (abdomen)

Psyche, 1937 VOL. 44, PLATE II.



Hull — Syrphid Flies

NEW BUPRESTID BEETLES COLLECTED IN THE SOLOMON ISLANDS AND FIJI ISLANDS BY DR. W. M. MANN, WITH DESCRIPTIONS OF SOME OTHER NEW INDO-MALAYAN SPECIES

By A. Théry

Attaché au Muséum National d'Histoire Naturelle de Paris

The present paper contains descriptions of new species of Buprestidæ collected, for the most part, by Dr. W. M. Mann in the Solomon Islands and the Fiji Islands. I have to thank my colleague, Dr. P. J. Darlington, of the Museum of Comparative Zoölogy, Harvard College, Cambridge, U. S. A., in whose care Dr. Mann's insects are at present placed, for lending me the specimens here described.

Genus *Paracupta* H. Deyr.

Paracupta meyeri Kerr., Ann. Soc. Ent. Belg. XLIV, 1900, p. 63.

This species is still very rare in collections; one ♀ specimen only was captured by Dr. Mann, at Mt. Victoria, Viti Levu, Fiji Islands; I have compared this specimen with the unique type in the collection of the British Museum to which it is exactly similar. Kerremans' description is not quite exact; the author states that the five furrows of the pronotum are uninterrupted; as a matter of fact only the two external and the median furrows are so, the two others are lightly interrupted at the middle. The Kerremans Collection at the Paris Museum contains a specimen of this species.[1]

Paracupta evansi n. sp. (Pl. III, Fig. 1)

Length: 19 mm.; breadth: 6.5 mm.—♂. Elongate, navicu-

[1]The first collection of the late Mr. Kerremans was sold to the British Museum in the year 1903. A new collection containing the species described by this author from 1903 to 1915 was divided after his death; the African species except those of Madagascar have been purchased by the Musée du Congo, at Tervueren (Belgium), the rest of the collection by the Muséum National d'Histoire Naturelle at Paris.

lar, rather convex, narrower behind than in front, feebly gibbous above. Head and pronotum green, with the bottoms of the depressions coppery red; scutellum reddish; elytra brown with a slight greenish tinge. Beneath, shining green with cupreous reflexions, the extreme tip of the last segment reddish, the ground of all the depressions, above and beneath, clothed with deciduous, short pubescence, intermixed with a brownish secretion. Antennæ, apex of the tibiæ, and tarsi entirely of a bright yellow color; the rest of the tibiæ and the femora castaneous.

Head triangularly impressed in front, the summit of this impression reaching the vertex; front separated from the eye by a shallow groove interrupted at the middle of its length and communicating with the frontal impression. Eyes large, a little more widely separated in front than on the vertex. Antennæ reaching the level of the intermediate coxæ.

Pronotum nearly once and a third as wide as long; as wide at the anterior margin as long. Anterior margin arcuately emarginate. Greatest width at about posterior two sevenths of length; sides nearly straight from the anterior angles to middle, then arcuate, and feebly narrowed quite near the base. The base nearly transversely truncate; the posterior angles feebly acute; the lateral margin with lateral carina not well defined, coarsely punctate. Disk with an entire, narrow, longitudinal stria at middle; a broad irregular depression along the lateral margin on each side extending from near the anterior margin to the base, and widest at the base, narrowed anteriorly, with the bottom very finely rugose. Behind the anterior margin, on each side, there is a little, finely punctured area. The disk is coarsely punctured.

Scutellum small, smooth, shining, wider than long.

Elytra wider at the shoulders than the pronotum at the base, truncate at the humeral angles; the sides nearly parallel to the apical third, then straight and narrowed to apex, with sides strongly serrate from the apical third to the tip, the serration becoming obsolete at the apex, the sutural angles feebly acute. The side of the disk with a large depression along the lateral margin, extending from the humerus to the tip, this depression very finely and very densely punctate, limited exteriorly by the epipleural carina. Each elytron with three elevated, parallel, shining costæ, not

including the scutellar one which is short, extending only from the base to anterior third and then united to the sutural one; the intervals between the costæ very finely and densely punctate, less shining than the costæ. The first costa only is entire; between the second and third costæ, near the humerus, there is a short obsolete costula. Beneath very shining on the smooth spaces, and sparsely punctured. Prosternal episterna and a broad depression on each side of the abdominal segments finely and densely punctate and covered with a very fine recumbent pubescence. The last segment with a small triangular emargination at the apex. Prosternum feebly convex; the prosternal process strongly grooved, strongly punctured in the region of the sulcus.

Described from a single specimen (type, Museum of Comparative Zoölogy no. 22,507) collected at Taviuni, Somo Somo, Fiji Islands, by Dr. W. M. Mann. There is also, in the British Museum's collection, a specimen of this new species captured in the Fiji Islands by Mr. Evans. This specimen is a little smaller.

The description of this species agrees pretty well with that of *Paracupta dilutipes* Fairm., Pet. Nouv. Ent. II., 1878, p. 278, from the same region; the type of this species seems to be lost. Fairmaire's description is so short that it is quite useless; the author says: *"Elongata, antice posticeque fere æqualiter attenuata, modice convexa, fusco-ænea, metallica; foveis duabus prothoracis vittaque elytrorum marginali cupreis griseo-sericeis; subtus dense luteo sericans, medio fere lævis; antennis pedibusque flavo-testaceis, femoribus paulo obscurioribus; elytris post medium attenuatis,* parum profunde striatis, intervallis fere planis, *strigosis." P. evansi* is evidently "bicolor" above. The expressions in Roman type in Fairmaire's description, above, seem not to agree with the description of *P. evansi* mihi.

Paracupta manni n. sp. (Pl. III, Fig. 2)

Length: 19 mm.; breadth: 6 mm.—♂. Elongate, rather acuminate posteriorly. Above uniformly golden green with reddish tinge at the tips of the elytra. Beneath light cupreous; antennæ and legs light brown.

Head rather wide, with a triangular depression in front,

the bottom of this depression very finely punctate and clothed with an inconspicuous pale pubescence. The epistoma separated from the front by a swelling. Eyes elliptic, feebly convex, converging to the occiput; antennæ reaching the level of the anterior cotyloid cavities.

Pronotum a little more than once and one third as wide at base as at the anterior margin, and a little more than once and a half as wide as long; widest at the base; the anterior margin strongly arcuately emarginate; the sides feebly attenuate from the base to the anterior third, then arcuately narrowed to the anterior angles, the posterior acute and rather prominent; the base nearly tranversely truncate. Disk coarsely sculptured, the punctures becoming more distinct near the sides and the anterior angles; the middle of the surface narrowly furrowed; each side with a deep, wide depression, finely punctured, occupying half of the length and reaching the posterior margin.

Scutellum small, rounded posteriorly and straight anteriorly, smooth.

Elytra as wide as the pronotum at base, slightly expanded and truncate at the shoulders, then nearly parallel to behind the middle, and straight and strongly acuminate to the tips, strongly and sharply serrate along the margin from the middle to apex; the sutural angle toothed. Surface with eight punctate striæ, the juxtasutural stria reaching only from the base to the basal quarter of the length; the intervals between the striæ very slightly convex.

The prothoracic episterna, and the sides beneath, very finely punctate and clothed with very inconspicuous recumbent pubescence; the middle of the body shining, glabrous, very sparsely punctate. Prosternal process deeply furrowed and coarsely punctate at middle; first abdominal segment flattened at middle; last abdominal segment brownish, constricted at apex, angularly and feebly emarginate. Legs and tarsi long.

A single specimen (type, M. C. Z. no. 22,508) of this very beautiful species was captured by Dr. W. M. Mann at Nadarivatu, Viti Levu, Fiji Islands.

It seems to me that this species is very unlike all others in the genus.

Genus *Haplotrinchus* Kerr.

Haplotrinchus manni n. sp. (Pl. III, Fig. 3)

Length: 12 mm.; breadth: 4.5 mm.— ♂. Wide, very attenuate posteriorly, the elytra tailed at apex. Green above, with violaceous reflexions; beneath green, the tarsi bright brown.

Head as wide as the anterior margin of the pronotum; eyes slightly convex, regularly elliptic, and very much closer on the vertex than in front. Front with a rounded depression near the epistoma occupying its entire breadth, and a longitudinal one above the first and separated from it by a smooth and shining transverse swelling; this second depression reaches the upper level of the eyes and is separated from the anterior margin of the eyes by a narrow, smooth, and shining carina; the bottom of this depression is clothed with inconspicuous pubescence. Epistome emarginate. Antennal cavities subtriangular. Antennæ reaching to base of the pronotum, serrate from the fifth joint, the fourth and fifth subequal, the third joint a third shorter than the fourth, and the second a third shorter than the third.

Pronotum widest at base, about once and a half as wide at base as in front, nearly once and three quarters as wide as long. The anterior margin slightly bisinuate; the sides rather regularly rounded, with a little notch near the anterior angles produced by a small transverse furrow which runs along the anterior margin; the posterior angles rectangular; the sides bordered by a sharp carina, feebly sinuous, which reaches to the anterior transverse furrow already mentioned. Base slightly bisinuate. Surface bounded on each side by a broad cariniform swelling which runs along the lateral margin for two thirds of length from base; this swelling limited outside by an impression, very finely punctured at bottom, occupying the whole length of the pronotum. The middle of the disk smooth, shining, irregular, coarsely punctured, with a median, longitudinal, obsolete, finely punctate sulcus.

Scutellum cordiform, convex, smooth, shining.

Elytra once and a quarter as wide at the shoulders as the pronotum at base, outlined by a narrow smooth carina at the base, the shoulders expanded and forming a rounded lobe

with a little notch behind; slightly enlarged to the posterior third, then sinuously constricted, ending in a trispinous tail each side of the suture, the external spine of each elytron longer and more acute than the median one but not reaching the level of the median one. Disk shining, punctate-striate, the intervals convex and punctate. Each elytron with seven large, finely punctate, and inconspicuously pubescent areas, arranged as follows: one in the humeral depression; another one, large and rounded, at the middle of the length of the elytra, nearer the margin than the suture; a third one marginal, elongate, in the posterior third; and a juxta-sutural one at the posterior fifth; the other areas less marked, disposed between the humeral and the median areas.

Anterior margin of the prosternum angulately prominent on each side, with a little triangular notch at the middle; the prosternal process densely punctate, pubescent, not margined. Prothoracic episterna strongly and rather densely punctate on the outer sides, smooth and sparsely punctate on the inner sides. Abdominal segments strongly but sparsely punctate, the anterior angles finely and densely punctate and inconspicuously pubescent. The last sternite rounded at apex, with an acute spine on each side. Aedeagus narrow, its sides furnished with some little, erect, spaced denticles. Parameres angulate at tip.

The ♀ is generally larger than the ♂; the last sternite is the same at apex; the prosternal process is strongly and sparsely punctate, not pubescent.

Six specimens of this new species (type ♂, M. C. Z. no. 22,509) were captured by Dr. W. M. Mann at Vanua Ava, Fiji Islands; a paratype stands in my own collection at the Museum National d'Histoire Naturelle at Paris, and another in the British Museum.

Genus *Nosotrinchus* Obb.

Nosotrinchus solomonensis n. sp. (Pl. III, Fig. 4)

Length: 12 mm.; breadth: 4 mm.—(?♀). Elongate, attenuate posteriorly, the apex of the elytra not forming a tail, as in *N. cæruleipennis* Fairm.; blue, elytra olive green with a longitudinal purple band, this band very narrow near the scutellum, enlarged behind and covering the apical third

of the elytra; apex black; the last two segments of the abdomen blackish.

Head moderately large, with a feeble tranverse depression between the eyes; occiput finely striate, finely and sparsely punctate; the part of the front between the eyes wider than long, its sides converging toward the vertex; epistoma not distinctly separated from the front, slightly emarginate. Antennal cavities wide, triangular, with a little oblique carina above. Antennæ reaching nearly to the middle of the length of the pronotum, serrate from the fourth joint, the first joint rather long, the second subglobular, the third nearly twice and a half as long as the second and equal to the fourth.

Pronotum widest at base, nearly once and a fifth as broad at base as at apex, and once and a half as wide as long; the anterior margin nearly transversely truncate, with a swollen margin, latter feebly obliterated at middle; the sides feebly arcuate, sinuate before the posterior angles, which are acute; the marginal carina arcuate, interrupted at the anterior quarter; the prothoracic episterna nearly smooth; the base widely and somewhat deeply bisinuate. Disk feebly and sparsely punctate, more strongly and rugosely at the sides; on each side of the median line, not far from the base, a very deep impression the bottom of which is crossed by an oblique stria inclined outward and forward at an angle of 45°.

Scutellum small, transverse, nearly cordiform.

Elytra once and a fifth wider than pronotum, long, sinuate at sides from shoulders to middle, and arcuately attenuate from middle to apex; strongly tridentate at tips, the posterior half strongly serrate; surface punctato-striate, the striæ stronger on the sides, the intervals flat, equal, and obsoletely punctate. Punctures of the striæ of the sides anteriorly transverse and forming some wrinkles.

Anterior margin of the prosternum slightly emarginate, finely margined; prosternal process smooth, with swollen margin. Beneath, aciculately punctate, the last abdominal segment tridentate at apex, with a little denticle on each side. (The ♂♂ in the genus *Nosotrinchus* generally have the last abdominal segment emarginate between two spines, among the ♀♀ it is bi-emarginate, with three spines.) Tarsi half as long as the tibiæ; claws short and rather strong.

A single specimen of this new species (type, M. C. Z. no. 22,510) was captured at Malaita, Auki, Solomon Islands, by Dr. W. M. Mann.

This species is very like *N. coeruleipennis* Fairm.[1] from the Fiji Islands, but is specifically distinct by the following characters.

1. The front without a depression.
2. The depressions of the base of the pronotum.
3. Sides of the pronotum sinuate before the anterior angles.
4. The color is different. *N. coeruleipennis* Fairm. has the head, the pronotum, and the lower surface, except the last segment at apex, cupreous, the elytra purplish with apex blackish.

Genus *Melobasis* C. & G.

Melobasis albertisi Théry

I described this species in the *Ann. Mus. Civ. Stor. Nat. Genova,* LI. (1923), p. 7, from four ♀ ♀ specimens captured at Kataw, N. Guinea, by M. d'Albertis. A specimen of this species in the Museum of Comparative Zoölogy (Harvard College Collection), captured at Humboldt Bay by Dr. Thomas Barbour, is a ♂; it differs from the ♀ type in its slender form, the frontal punctures very close and confluent, the pubescence thicker on the occiput, the posterior angles of the pronotum less divergent, the intervals between the elytral striæ slightly convex, the anterior femora dull, the abdomen less pubescent and with green reflections, and the last abdominal segment longitudinally wrinkled. Perhaps this form is a new variety.

Subgenus *Diceropygus* H. Deyr.

Diceropygus stevensi n. sp. (Pl. IV, Fig. 8)

Length: 15 mm.; breadth: 5 mm.— ♀. Aeneous, the punctures green and shining; tarsi bluish, claws steel blue and more shining; labrum green. Elongate, distinctly more attenuate posteriorly than in front. Elytra as wide at the shoulders as at the posterior third of their length.

[1]*Nosotrinchus simondsi* Obb., Sbornik II., 1924, p. 13, is a synonym of *N. coeruleipennis* Fairm.

Head narrower than the anterior margin of the pronotum, very feebly convex in front, flat on the vertex, finely, densely, and irregularly punctate; front with a narrow, smooth, longitudinal carina reaching nearly to the epistoma; latter emarginate, not distinctly separate from the front. Anterior margins of the eyes converging posteriorly. The space separating the eyes, on the vertex, equal in width to the width of the eyes. Antennæ not reaching the base of the pronotum, serrate from the fourth joint, the first joint elongate, the second twice as long as wide, the third as long as the second and slightly longer than the fourth.

Pronotum widest at base, a little more than once and a half as wide at base as at apex, and once and two thirds as wide as long; the anterior margin rather broadly and deeply bisinuate, finely margined; the sides straight and nearly parallel at base, then rounded and feebly convergent in front, each margined laterally by a regularly arcuate, sharp carina, slightly bent in front and reaching the anterior margin a little below the anterior angle; the posterior angles acute and slightly divergent; the base feebly bisinuate; the surface regularly convex, feebly flattened in the middle, punctate, the punctures green, slightly oval, larger, denser, and more oval on the sides than in the middle, and with an irregular, impunctate, longitudinal space at middle, and with a little impressed fovea in front of the scutellum.

Scutellum wide (0.8 by 0.5 mm.), rounded laterally and posteriorly and truncate in front, smooth, shining, sometimes reddish.

Elytra as wide as pronotum at base, subtruncate at the shoulders, widest at the shoulders, nearly parallel to apical third, then straight and attenuate to the tips, which are separately rounded and acutely serrate, the denticles becoming very small at apex. Sutural edge margined in apical third of its length. Surface with nine striæ, the bottom of each with a line of very transverse punctures, the intervals between the striæ very convex, the third and fourth striæ feebly divergent at the base, leaving a coarsely punctured space, the fifth abutting a mass of shining punctures; the intervals becoming obsolete at base, except the fifth, which is prolonged in front.

Prothoracic episterna finely and regularly punctate,

pubescent; prosternal process flat, acute at apex, finely and regularly punctate, clothed with long, very sparse greyish hairs; the last abdominal segment with four strong spines at end, the lateral not so strong as the median, which are very long, acute, and limit a small semicircular emargination. Tarsi rather long, the first two joints narrow, the two following expanded, claws rather long and thickened at the base.

Three specimens of this new species, all of which are females (type, M. C. Z. no. 22,511), were captured at Mt. Misim, Morobe District, New Guinea, by Mr. Herbert Stevens. A paratype stands in my own collection at the Muséum National d'Histoire Naturelle, Paris.

I do not know any *Diceropygus* with which I may compare this; it is so much like *Briseis curta* Kerr. that it seems possible to confuse the two species. They can be distinguished by the scutellum, which is twice as broad in *Diceropygus stevensi* as in *Briseis curta* Kerr., and by the lack of a lateral protuberance on the prosternal margin of *Diceropygus stevensi.* The latter will be placed next to *Briseis curta;* it appears that the characteristics given for the subgenus *Briseis* are without value.

Diceropygus brevicollis n. sp. (Pl. IV, Fig. 10)

Length: 12 mm.; breadth: 4 mm.—♂. Bronzy green above, the elytra with three steel blue spots and with some slightly purplish reflections; lower surface brownish, with bluish and purplish tinges. Legs brownish, the femora green anteriorly, tarsi and antennæ greenish blue; prosternal process and middle of the metasternum green. Elongate, distinctly more attenuate posteriorly than in front.

Head slightly convex on the vertex, nearly flat in front, very finely and confluently punctate, clothed with rather long greyish pubescence. Eyes broad and regularly elliptic, their anterior edges slightly convergent toward the vertex; the interval between the eyes a fifth wider than the breadth of the eyes. Epistoma not distinctly separated from the front, very slightly emarginate. Antennæ reaching the base of the prothorax below, serrate from the fourth joint, all joints except the first nearly equal in length, the first joint yellow at base, apex of the last joints brownish; palpi brownish.

Pronotum short, widest at the middle, twice as wide as

long, scarcely once and a fifth as wide at base as at the anterior margin. The anterior margin nearly straight in the middle, bordered by a stria; the anterior angles projecting forward; the sides slightly converging from middle to the anterior angles, sinuate from middle to the posterior angles, which are slightly divergent. The sides margined in basal two thirds of their length by a smooth, straight carina. The base tranversely truncate. Surface sparsely and unequally punctate, the punctures well separated on the middle, but becoming much denser and very confluent at the sides, which are clothed with long recumbent pubescence.

Scutellum very wide, straight in front, nearly semicircular posteriorly, the disk with a few punctures in the middle.

Elytra a little wider at the humeral angles than the pronotum at the base; the shoulders slightly expanded and rounded; the sides nearly parallel from the shoulders to behind the middle, then feebly attenuate to the tips, which are separately narrowly rounded; the sides in the posterior marginal half very acutely serrate, the denticles closer apically but also strong laterally. Sutural margin bordered by a sharp carina in the apical half of its length. Surface unequal, with a narrow and deep depression between the base and the humerus, striate-punctate, the striæ obsolete, the punctures well marked but irregular, becoming stronger toward the sides. The intervals slightly and irregularly convex, becoming quite obsolete at base. The steel blue spots arranged thus: the first on the first third, not reaching the base; the second behind the middle, reaching the suture and the lateral margin; the third covering the apex; these spots rather indistinct, as in *Diceropygus maculatus* H. Deyr.

Prothoracic episterna very finely and regularly punctate, clothed with recumbent pubescence. Prosternal process very wide, trifid at apex, finely and regularly punctate, flat, shining. Abdomen pubescent toward the sides; the abdominal segments finely longitudinally strigose; the last segment much more strigose, emarginate at apex between two long and acute spines which are prolonged on the disk of the segment, forming little carinæ; the emargination with a little stria parallel to the edge. Posterior tibiæ rather long; posterior tarsi rather short and distinctly enlarged at apex.

A single ♂ specimen of this new species (type, M. C. Z.

no. 22,512) was captured at Nadamvatu, Viti Levu, Fiji Islands, by Dr. W. M. Mann. This species is colored like *D. maculatus* H. Deyr., but differs from all previously known *Diceropygus* in the very short pronotum.

Diceropygus variegatus n. sp. (Pl. IV, Fig. 5)

Length: 9.75 mm.; breadth: 3.6 mm.—(♂?). Elongate, distinctly more attenuate posteriorly than in front; elytra slightly widened at the posterior third; color purple above, with the suture, a narrow band reaching from the humeral depression to the anterior fifth, and another submarginal one at the middle of the elytra, green. Beneath purplish black; tarsi cyaneous.

Head less wide than the anterior margin of the pronotum, nearly flat in front, very densely and strongly punctured. Epistoma slightly emarginate, not distinct from the front; eyes large; antennæ rather long, the base of the first joint yellow.

Pronotum widest at the middle, nearly twice as wide as long, and a little less than once and a fourth as wide at base as the anterior margin. Anterior margin strongly bisinuate, margined; the sides feebly rounded, sinuate in front of the posterior angles, which are acute and slightly divergent. The base slightly bisinuate, without distinct median lobe. The sides bordered by a smooth, curved carina, reaching from the base to the anterior angles, which are rounded, the posterior angles acute and feebly divergent. Disk regularly convex, slightly flattened at middle, with a little depression in front of the scutellum, strongly and sparsely punctured, the punctures more sparse at middle.

Scutellum wide, twice as wide as long, rounded posteriorly, truncate in front, very finely strigose.

Elytra a little wider at the shoulders than pronotum at base, widest at apical third; the sides straight and diverging from the shoulders to apical third, then arcuately attenuate to tips, the sides very strongly and sharply serrate from the middle to apex, where the serration is less strong. Disk with a close punctuation disposed in longitudinal series, without distinct striæ; the intervals scarcely convex, the ground microscopically sculptured.

Anterior margin of the prosternum nearly tranversely

truncate, slightly swollen; the prosternal process rather convex, very sparsely and rather strongly punctate, margined at the sides and very acutely narrowed at the apex. Abdomen covered with sparse aciculate punctuation; the last abdominal segment broadly emarginate apically, between two long spines. Posterior legs long, the tarsi more than half as long as the tibiæ; first joint of the posterior tarsi as long as the second, the fourth joint very short.

A single specimen of this new species (type, M. C. Z. no. 22,513) was found, in good condition, in the stomach of a bird, *Pœcilodryas albonotata* Hart., at Mt. Misim, Morobe District, New Guinea, by Mr. Herbert Stevens.

Genus *Sambus* H. Deyr.

Sambus manni n. sp. (Pl. IV, Fig. 6)

Length: 3.9 mm.; breadth: 1.7 mm.—♀. Small, short, subparallel at middle; æneous above, with purplish reflections. The front and the two first joints of the antennæ reddish purple; beneath, black, with the legs more or less blackish æneous. Entirely clothed above with regular, whitish pubescence which does not conceal the ground; two lateral elytral impressions, and the scutellum, glabrous.

Head very convex in front, deeply grooved, the groove becoming less distinct on the front and quite obsolete behind the middle; finely punctate and clothed with silvery pubescence. The portion of the front between the eyes rectangular and slightly longer than wide; epistoma separated from the front by a carina, emarginate in front, depressed in the middle. Eyes very convex, elliptic, more than twice as long as wide. Antennæ black, serrate from the fifth joint, short, reaching the middle of the pronotum.

Pronotum nearly twice as wide as long, distinctly narrower in front than behind; anterior margin bisinuate, with the median lobe feebly prominent and broadly rounded; the sides flattened and nearly regularly arcuate, with the lateral margins finely crenulate, particularly behind the middle; base strongly bisinuate with median lobe broadly rounded in front of the scutellum; lateral carinæ entire, slightly sinuate; posterior angles entirely rounded, angular carinæ very arcuate, reaching from the posterior angles to the apical fourth;

disk convex anteriorly, broadly concave posteriorly, with a rather deep longitudinal depression inside of the angular carina on each side, reaching from the base to the middle of the length. Surface rather strongly punctate, sparsely clothed with long, white, semi-recumbent pubescence.

Scutellum subtriangular, without transverse carina.

Elytra nearly as wide at the shoulders as the middle of the pronotum, rather convex; sides arcuately constricted from the shoulders to basal third, expanded at posterior third, then arcuately attenuate to tips, which are separately rounded; the sutural angles rounded, without denticle; the sides of the elytra finely serrate at the shoulders and along the posterior third; surface finely granulate; each elytron with a shallow depression reaching from the base to the suture at basal fourth and another along the lateral margin behind the humerus.

Chin piece straight in front, bordered by a little swelling, separated from the prosternum by a very deep and narrow groove. Prosternum convex, granulate. Inner posterior angles of the posterior coxæ rounded. Abdomen finely punctate and regularly clothed with sparse, white, recumbent pubescence. Disk of the last segment separated from the pleural margin by a deep and narrow groove; this groove curved inward onto the disk on each side, curving away from the basal angles of the segment. Lamellæ of the tarsi yellow.

A single specimen of this new species (type, M. C. Z. no. 22,514) was captured at Marova L., Fiji Islands, by Dr. W. M. Mann.

Sambus darlingtoni n. sp. (Pl. IV, Fig 7)

Length: 4.3 mm.; breadth 1.9 mm.—♂. Small, short, very feebly narrowed from the shoulders to the middle. Blackish æneous above; elytra pubescent, marked with designs forming transverse bands and spots of white pubescence mixed with yellow hairs. Head and antennæ green. Beneath, blackish, clothed with short, greyish, recumbent pubescence.

Head convex, more convex and bituberculate at the summit of the front, deeply grooved, the groove reaching nearly to the epistoma; slightly rugose and distinctly punctate, with white, sparse, rather long pubescence forming a rosette; the

portion of the front between the eyes longer than wide, feebly constricted at middle, and distinctly expanded before the epistoma, from which it is separated by an entire carina. Epistoma a little wider than long, emarginate in front. Eyes prominent, more than twice as long as wide. Antennæ very short, serrate from the fifth joint, reaching the middle of the pronotum.

Pronotum more than twice as wide as long, distinctly narrower in front than behind; anterior margin bisinuate, with the anterior angles prominent, the median lobe slightly prominent and broadly rounded; the sides expanded and very regularly arcuate, with the lateral margins feebly crenulate; base strongly bisinuate, with the median lobe rounded in front of the scutellum; lateral carinæ entire, feebly sinuate when viewed from side; posterior angles entirely rounded; angular carinæ very arcuate, reaching from the posterior angles to the apical fifth, where they are abruptly terminated. Disk convex anteriorly, broadly concave posteriorly, with a rather deep depression on each side, reaching from the posterior margin to near the anterior angles. Surface distinctly and regularly punctate, semicircularly and finely striate, sparsely clothed with white, semi-recumbent hairs.

Scutellum wide, subtriangular, finely transversely strigose, with a very distinct transverse carina.

Elytra a little wider at the shoulders than at the middle, slightly wider at the shoulders than behind the middle (a little wider behind the middle than at the shoulders in the female), rather convex; the sides slightly, arcuately constricted from the shoulders to posterior third, arcuately attenuate apically, tips nearly conjointly rounded, but with sutural angles rounded, without denticles; the sides of the elytra very finely, almost indistinctly serrate behind the shoulders and in the posterior third. Surface finely imbricate, indistinctly punctate, each elytron with a shallow depression at the base and another behind the shoulders along the lateral margin. Disk of the elytra clothed with a very fine, semi-recumbent pubescence; this pubescence blackish and inconspicuous on the ground between the designs of silvery and yellow (mixed) hairs, which are disposed as follows: the basal quarter except the humeri nearly covered with intermixed silvery and yellow hairs; a lateral spot at the middle

of the lateral margin, united with a discal one at the anterior third; a juxta-sutural spot behind the middle; and two transverse, very sinuous, ante-apical bands, which are more or less confused.

Chin piece indistinctly emarginate in front, finely margined, separated from the prosternum by a deep, narrow groove. Prosternum convex, granulate, clothed with sparse hairs; the prosternal process rather wide; internal posterior angle of the posterior coxa acute. Abdomen finely punctate and clothed with sparse, whitish, recumbent pubescence. Disk of the last segment clothed with long recumbent hairs, emarginate at apex, separated from the pleural margin by a deep narrow groove, which is curved onto the disk on each side, the curve tending away from the basal angles.

A ♂ specimen of this species (type, M. C. Z. no. 22,515) was captured at Yandina, Russell Islands, by Dr. W. M. Mann; a ♀ specimen was captured at Marowa L., Fiji Islands, by Dr. Mann, and is now in my own collection. The ♀ differs from the ♂ by having the front reddish.

Genus *Agrilus* Steph.

Agrilus mannianus n. sp. (Pl. IV, Fig. 11)

Length: 6.6 mm.; breadth: 2 mm.—♂. Elongate, rather broad, subopaque, feebly convex above; cupreous, with a purplish tinge, the front and the antennæ smaragdinous green, the anterior and median femora with a greenish tinge, each elytron ornamented with a poorly defined longitudinal pubescent vitta along the posterior quarter of the suture, this vitta narrowed posteriorly and not reaching the apex. The whole surface clothed with a fine, greyish, recumbent pubescence. Beneath, cupreous, clothed with a very short, regular, greyish, recumbent pubescence, not concealing the ground.

Head with the front rather wide, very feebly convex, vaguely wider basally than anteriorly, with lateral margins feebly sinuate; the vertex and front finely furrowed, the furrow reaching the epistoma but nearly obsolete in front. The color of the vertex sharply defined from that of the front. The front transversely impressed anteriorly, with a little pore at each side, separated from the epistoma by a

narrow carina; the surface regularly punctured, more or less rugose, the intervals between the punctures convex. Surface covered with a sparse but distinct whitish pubescence. Vertex finely punctate, the punctures becoming more longitudinal near the front. Eyes large, subelliptic; the temples clothed with silvery, rather long, dense pubescence. Antennæ extending nearly to base of pronotum, serrate from the fourth joint, the second and third joints subequal, longer than the fourth.

Pronotum widest near the anterior margin; obliquely widened, with sides straight, from base to the anterior third, then feebly, arcuately narrowed to the anterior angles. The anterior margin slightly bisinuate, bordered by a stria interrupted at middle, with the median lobe feebly produced. The posterior angles feebly expanded and distinctly obtuse; when viewed from the side, the marginal carina is nearly straight, feebly sinuate, to the anterior angles; the lower carina is connected at base with the lateral carina, and the two are nearly parallel on the anterior half of the pronotum. The angular carinula extends from near the posterior angle to near the middle of the lateral carina, but does not reach the angle or the lateral margin. Base trisinuate, the median lobe feebly produced and broadly, arcuately emarginate in front of the scutellum. Disk broadly transversely depressed in front and near the base, with a suboval longitudinal depression in front of the scutellum; surface very feebly pubescent, finely and subtransversely rugose, with the intervals between punctures slightly convex.

Scutellum wide, transversely carinate.

Elytra somewhat wider at the shoulders than the pronotum at the base, nearly equal in width at base and behind the middle, then obliquely and arcuately narrowed to the apices, which are separately and rather narrowly rounded and very finely serrulate. Disk slightly flattened, without costæ, feebly depressed posteriorly along the suture. Suture moderately elevated posteriorly. The base of each elytron with a broad, deep depression between the humerus and the basal margin, which is distinctly carinate. Surface finely imbricate.

Abdomen wider than elytra, narrowly exposed at sides. Chin piece slightly emarginate at middle; prosternum

rugose; prosternal process wide, depressed at middle, rounded at apex. Abdomen very finely punctate; disk of the last segment arcuately emarginate at apex, the pleural margin feebly emarginate at middle, separated from the disk of the segment by a deep, narrow, entire groove; the apex bordered by some long erect hairs. The suture between the first two segments not distinct. Tibiæ slender, the anterior nearly straight; tarsi elongate.

Seventeen specimens of this new species (type, M. C. Z. no. 22,516) were captured at Yandina, Russell Islands, by Dr. W. M. Mann; paratypes of this species are in my own collection and in that of the British Museum.

Agrilus levuensis n. sp. (Pl. IV, Fig. 12)

Length: 11 mm.; breadth: 3 mm.— ♀ . Shining bluish black with a violaceous tinge above, of the same color below; elongate, rather robust; elytra sinuate laterally from the shoulders to behind the middle, then sinuously narrowed to the tips, which are separated, each ending in a strong spine. Elytra with a wide sulcus along the suture, the surface finely and irregularly punctate and clothed with short, greyish, recumbent pubescence which is scarcely distinguishable. The front with a large white spot. Abdominal segments with, on each side, little depressions not reaching the margin, and clothed at bottom with recumbent white pubescence.

Head rather wide, with the front strongly concave between the eyes, the excavation carinate at the sides along the eyes, finely grooved at middle; the sides of the front, between the eyes, are at first parallel, then abruptly convergent toward the epistoma; the surface covered with transverse and slightly oblique wrinkles. Eyes elliptic, large, reaching the anterior margin. Antennæ extending nearly to the middle of the pronotum, serrate from the fourth joint, the second joint wider than, and once and a half as long as, the third.

Pronotum trapezoidal, scarcely once and three quarters as wide as long, widest at the base; the anterior margin scarcely bisinuate; the sides straight, a little angulose at middle; the base deeply bisinuate, with the median lobe truncate in front of the scutellum. The posterior angles obtusely angulate; the marginal carina feebly sinuate; the lower carina obso-

letely indicated, interrupted at middle, and forming a smooth swollen area anteriorly; the angular carina sharply defined, extending arcuately from the posterior angles to the lateral carina at middle. Surface with a wide longitudinal sulcus, narrowed in front, the bottom of this sulcus with some little wrinkles; the sides of the pronotum each with a wide, oblique, strong depression at the middle of the margin and reaching the anterior angle, the bottoms of these depressions also with some wrinkles, the rest of the surface with some coarse punctures on a nearly smooth ground.

Scutellum large, cordiform, the anterior margin straight, the apex strongly acuminate.

Elytra scarcely wider at the base than the pronotum, nearly twice and three fifths as long as wide, slightly sinuate behind the shoulders, then narrowed and nearly straight, and again slightly sinuate laterally before the apex, where each is produced in a strong spine; the sutural angles slightly spinose; the sides without any serration. Disk very finely sculptured, the punctures triangular and rather sparse; a strong sulcus along the suture, widened on anterior third, attenuate near apex, and very rugose at bottom.

Chin piece of the prosternum straight at middle, short. Prosternal process wide, rounded at apex, shining, smooth, and sparsely punctate. Last abdominal segment separated from the pleural margin by a groove; the pleural margin finely striate; surface of the last segment with a series of spiniform granulations intermixed with rigid, black, erect hairs. Abdomen slightly punctate, shining. First joint of the posterior tarsi as long as the second.

Described from a single specimen (type, M. C. Z. no. 22,517) collected at Nadarivatu, Viti Levu, Fiji Islands, by Dr. W. M. Mann.

This species will be placed next to *Agrilus taveuniensis* mihi (Ann. Soc. Ent. Belg. 1934, p. 145). It is distinguishable by its violaceous black color, its smooth prosternal process, the first joint of the posterior tarsi not longer than the second, etc.

Agrilus fidjiensis Obb. (Arch. f. Nat. 1924, p. 119)

After a careful examination of the description of this species, it appears to me that it agrees with that of *A. fissifrons* Fairm. from the Fiji Islands. *A. fidjiensis* is a syno-

nym of *A. fissifrons* Fairm., and the name *tetrastictus* Obb. (*l. c.*) must apply to a variety of *A. fissifrons* Fairm., the type of which has each elytron marked with a single spot. Fairmaire's species is represented in my own collection by a paratype.

Genus *Trachys* F.

Trachys darlingtoni n. sp. (Pl. IV, Fig. 9)

Length: 2.5 mm.; breadth: 1.6 mm. Oval, rounded in front, attenuate posteriorly, broadest at the shoulders, rather flattened above, with the scutellar region slightly convex and glabrous; the rest of the surface ornamented with designs of whitish pubescence forming two ante-apical, very sinuous fasciæ which join in several places, and a transverse, very irregular, inconspicuous band in the middle; the space between the designs clothed with yellow, sparse, semi-erect pubescence. Above, of a bright brassy color; beneath, dark bronze; the four first joints of the tarsi, and the palpi, yellow; the last joint of the tarsi, and the antennæ, black. The scutellar region appears to be normally glabrous (it is so in the four specimens examined).

Head very wide, shining, obsoletely punctate, with the front and vertex furrowed, the furrow reaching a wide, well marked impression above the epistoma; the latter rugose, distinguishable from the front only by the sculpture, emarginate in front. Eyes small, regularly elliptic, very oblique, and not prominent. Antennæ very short, serrate from the seventh joint, with a few long, rigid hairs.

Pronotum widest at the base, short; anterior margin emarginate, with a median, feebly projecting lobe; the anterior angles acute and feebly projecting, blunted at apex; sides moderately arcuate; the posterior angles slightly obtuse. Base narrowly margined, with a feebly projecting median lobe which is broadly subtruncate in front of the scutellum. Disk regularly convex, impressed along the base, shining, indistinctly sculptured at middle, the sides marked with distinct circles.

Scutellum small, equilaterally triangular.

Elytra widest at the shoulders, the humeri rather prominent, the sides arcuately attenuate from the base to the tips,

which are conjointly and broadly rounded. Disk feebly reticulate.

Plate of the prosternal process narrowed in front, obsoletely punctate, clothed with more or less erect hairs. All the abdominal segments separated from the pleural margin by an uninterrupted, narrow groove, the first segment with only a half groove. Last segment rounded at the apex, with the pleural margin very narrow. Claws bifid, the inner branch quite as long as the outer.

Four specimens of this species were captured at Coimbatore, S. India, by Mr. P. S. Nathan, and received by the Museum of Comparative Zoölogy from the Nicolay Collection. The type (no. 22,518) and a paratype are in the M. C. Z.; there is a paratype in my own collection at the Muséum National d'Histoire Naturelle in Paris.

Explanation of Plates

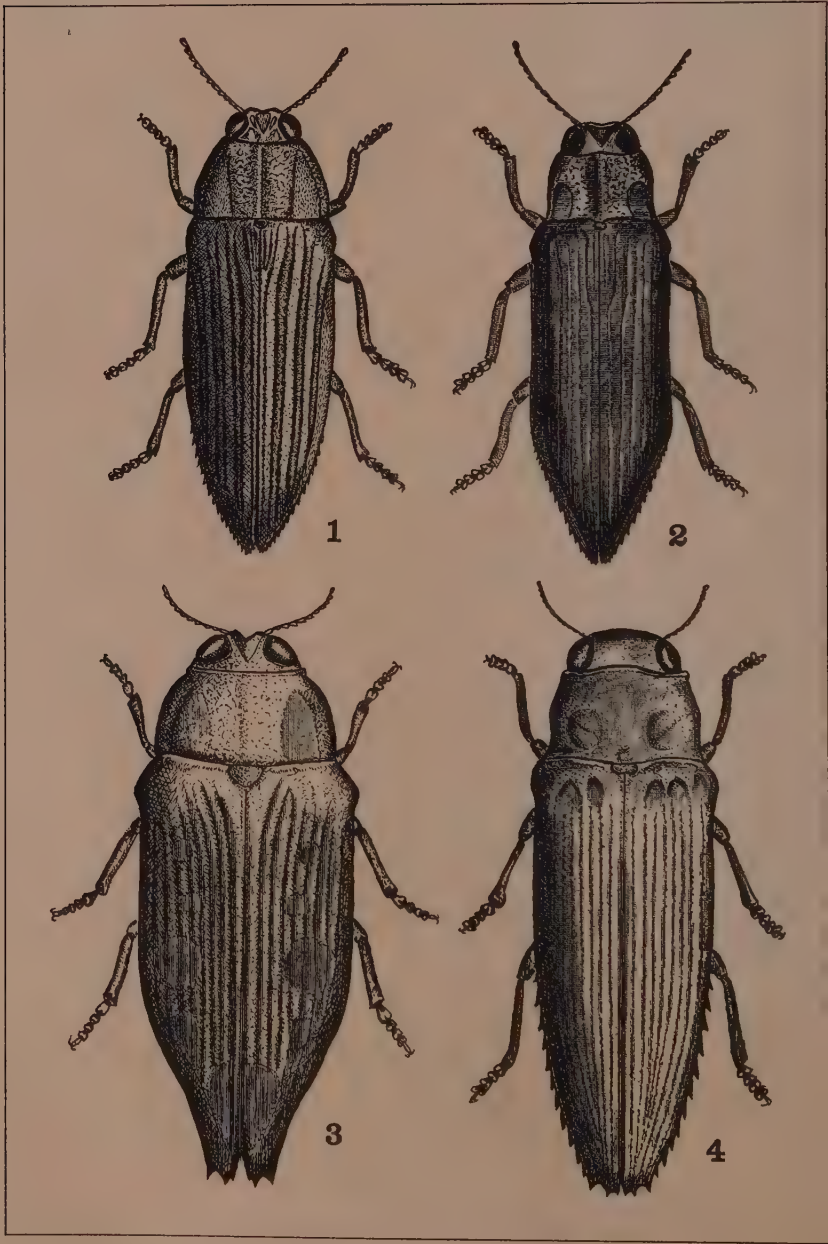
Plate III

Fig. 1. *Paracupta evansi* Théry, n. sp.
Fig. 2. *Paracupta manni* Théry, n. sp.
Fig. 3. *Haplotrinchus manni* Théry, n. sp.
Fig. 4. *Nosotrinchus solomonensis* Théry, n. sp.

Plate IV

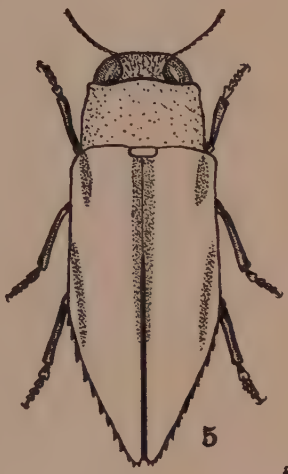
Fig. 5. *Diceropygus variegatus* Théry, n. sp.
Fig. 6. *Sambus manni* Théry, n. sp.
Fig. 7. *Sambus darlingtoni* Théry, n. sp.
Fig. 8. *Diceropygus stevensi* Théry, n. sp.
Fig. 9. *Trachys darlingtoni* Théry, n. sp.
Fig. 10. *Diceropygus brevicollis* Théry, n. sp.
Fig. 11. *Agrilus mannianus* Théry, n. sp.
Fig. 12. *Agrilus levuensis* Théry, n. sp.

Psyche, 1937 VOL. 44, PLATE III.



Théry — Buprestid Beetles

Psyche, 1937 VOL. 44, PLATE IV.



Théry — Buprestid Beetles

A NEW PAUSSID BEETLE FROM CENTRAL AMERICA

By P. J. Darlington, Jr.

Museum of Comparative Zoölogy, Cambridge, Mass.

The following new species not only adds another to the few known New World forms of the interesting family Paussidæ (*cf.* Kolbe, *Entomologische Mitteilungen,* Vol. 9, 1920, pp. 131-141; 145-156), but is the first record of the family from Central America.

Homopterus hondurensis n. sp. (Fig. 1)

Relatively slender (in genus); castaneous, moderately shining, appendages also castaneous; head posteriorly, pronotum, and elytra moderately closely but not densely punctate with punctures of moderate size, head anteriorly more sparsely and irregularly punctate. *Head* by measurement about 9/10 width prothorax; eyes very prominent; occiput not swollen; front concave; antennæ considerably longer than head and prothorax, formed as shown in figure, with outer anterior edges of segments 3 to 9 slightly overlapping following joints (when antenna is straight), flattened joints closely and finely punctate at sides but much more sparsely so at middle; palpi normal for Homopterus. *Prothorax* formed as shown in figure; convex but not swollen dorsally; disk somewhat impressed near base at middle and on each side; median line fine, lightly impressed; margins narrow, slightly broader before basal angles. *Elytra* probably subparallel and about 1/3 wider than prothorax (somewhat warped from preservation in alcohol), unusually elongate for genus, with usual rather inconspicuous tubercle on outer side before apex. Femora and tibiæ flattened, moderately broad (in genus), formed as shown in figure; tarsi shorter than width of tibiæ at apex, retracted into excavated tibial apices. Pygidium closely punctate; abdomen much more finely and sparsely so. Length 7¾ mm.

Type a unique (M. C. Z. no. 22,502) from Lancetilla, Honduras, collected by Dr. Marston Bates.

Lack of an occipital swelling apparently distinguishes this from the three previously described species of Homopterus. Otherwise the relatively narrow form and elongate antennæ ally the new species to *brasiliensis* Westw. and *bolivianus* Kolbe, although it differs from both in having a more nearly quadrate (less cordate) prothorax with more weakly arcuate sides. *Hondurensis* differs further from *brasiliensis* (but resembles *bolivianus*) in the overlapping of the edges of the antennal segments. I do not know either *brasiliensis* or

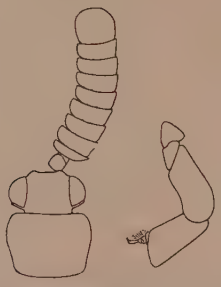


Fig. 1. *Homopterus hondurensis* n. sp. (type): outlines of prothorax, head, and right antenna, and of left middle leg from in front; from camera-lucida drawings.

bolivianus except from the literature, but the former has been figured in detail several times, and the latter is carefully compared with it by Kolbe. I have, however, seen a specimen of *Homopterus steinbachi* Kolbe, from Colombia. A sketch of the important segments of one antenna of this specimen has been compared with the type of *steinbachi*, and pronounced the same, through the kindness of Prof. Kolbe and the good offices of Dr. Walther Horn.

SOCIAL BEHAVIOR IN HOMOPTERA

By August P. Beilmann

Missouri Botanical Garden, St. Louis, Missouri

The literature relating to parental solicitude in the subsocial insects began, according to Bequært, with the writings of Herbst and Modeer in 1764. Most observations, however, have been reported during the last forty years. Bequært (1) lists but one case of parental care in the Homoptera. The following observation is of interest, since it concerns the terrapin scale (*Eulecanium nigrofasciatum*); hardly a promising subject for the development of social habits.

During the spring of 1932 heavy infestations of this scale were found on hawthorn and sycamore. Since dormant spraying had proven ineffective, these insects were being watched to learn the emergence date of the young. For this purpose one small undernourished hawthorn was selected, since its convenient location permitted frequent observations. On three successive mornings in June the young were seen to emerge in a body at 10 o'clock and move upward toward the new growth. When an examination toward evening failed to disclose their destination, it was assumed that these individuals were experiencing an unusual mortality rate. However, more young made their appearance the following morning, and continued to move about during the sunny hours. About 4 o'clock very few could be found, although some had settled on the foliage. It was then observed that a few stragglers were returning to the adult scales and after slight hesitation were crawling underneath. Again on the third morning, the nymphs appeared at one time and began their journey up the branch toward the new growth. Observations were more frequent during the afternoon and an additional number were found permanently located on the leaves. However, about 3:30 P. M. the general movement of the larvæ was reversed. They began to come down the branch—for some of them a journey of three feet—and to disappear beneath the adult females. Within twenty

minutes all had returned to remain safely covered for the night.

Simanton (2) has published a very comprehensive account of this scale as it occurs on the peach in Pennsylvania. He has noted the well timed emergence in the morning, but does not mention having seen any evidence of a return in the evening. This performance may have been due solely to the de-vitalized condition of the tree upon which the observations were made. The total new twig growth did not exceed two inches per year, and hardly more than four scrawny leaves grew from each branch tip. Thus, suitable locations for feeding and growth were reduced to a minimum. The apparently aimless wanderings and the return during the night, may have been due solely to the restricted choice of feeding sites.

LITERATURE CITED

1. Bequaert, J., 1935. Presocial behavior among the Hemiptera. Bull. Brooklyn Ent. Soc. XXX, pp. 177-191.
2. Simanton, W. A., 1916. U. S. D. A. Bull. 351.

Book Review. — A Monograph of the British Neuroptera, Vol. I, by Frederick J. Killington. Pp. 1-269, 68 text-figures and 15 plates. Printed for the Ray Society and sold by Bernard Quaritch, Ltd., London. This is the first comprehensive account of the British Neuroptera since MacLachlan's "Monograph" in 1868. The book is divided into six chapters. The first deals with the morphology of the families of British Neuroptera with special reference to the genitalia; the second, third, and fourth are concerned with the metamorphosis of the British species; the fifth deals with the bionomics; and the sixth with the systematics of the Coniopterygidæ, Osmylidæ, Sisyridæ and a few genera of Hemerobiidæ. The second volume will apparently consist of a systematic account of the rest of the Hemerobiidæ and the Chrysopidæ, as well as the entire bibliography. Although the systematic part of this book is of interest only to the specialist in the Neuroptera, the first five chapters should be of general interest to entomologists, since they contain much new information on the structure and biology of these insects.

F. M. Carpenter.

OBITUARY

Professor William Morton Wheeler, for many years an active member of the Cambridge Entomological Club and its most distinguished member, died suddenly on April 19th. The forthcoming issue will contain an account of Professor Wheeler's biological career and a list of his many and highly important entomological publications.

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